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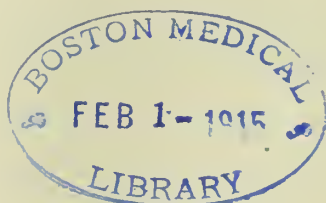


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INDEX TO VOLUME XXVI

July to December, 1914

This is an alphabetical index of articles and discussions arranged by leading words. It contains occasional cross references. Names of authors and men who discussed the papers are also included. Details of society proceedings, including the names of papers

read, officers elected, etc., can be located in the proceedings under Societies. Editorials, News of the State, Marriages, Deaths, Public Health Items are classified under these headings. The subjects of editorials also appear alphabetically and are marked (E).

A

Abderhalden Method, Precautions and Limitations of. Adolph Gehrmann, Chicago. 335
Abderhalden Reaction in Dementia Praecox.....327
Abderhalden Test, Demonstration of. Charles E. M. Fischer, Chicago.....338
Aberration, Man's Tendency Toward. Meyer Solomon, Chicago234
Abortion, Cause, Prophylaxis and Treatment. J. T. Mitchell, Oblong, Ill.....600
Abrahamson, Dr. Discussion. 295
Actions for Civil Malpractice. (E)196, 612
Alcohol in Medical Practice. W. C. Bouton, Waukegan..567
Adams, A. L. Discussion....475, 501, 516
Adams, A. L. Paper.....187
Address, Jas. A. Clark, Chicago222
Address, L. Harrison Mettler, Chicago221
Address, Judge Harry Olson, Chicago223
Adenoids, Relation of to Mental Deficiency. A. M. Corwin, Chicago.....400
Advertisements, Censorship of. A. M. Corwin.....465
Albro, M. Z. Paper.....210
Alcoholics370
Alcoholism as a Causative Factor of Insanity. Committee Report321
Alcoholism, Chronic. Chas. F. Read, Dunning267
Alienists and Neurologists. (E)457
Alienists and Neurologists, Meeting of. (E).....33, 131
Alienists and Neurologists, Proceedings. (E)194
Alienists and Neurologists, Resolutions of. (E)131

Allport, Frank. Paper.....476
Anesthesia, Some Psychic Factors of Surgical. R. H. Ferguson, East Orange, N. J. 81
Antrum, Diseases of. Truman W. Brophy, Chicago.....137
Anus, Imperforate. M. H. Smith, Sherrard.....108
Army Medical Corps Examinations. (E)545
Arterio-Venous Anastomosis for Gangrene.....171
Arthritis153
Arthritis, Etiology and Pathogenesis of Rheumatoid. David John Davis, Chicago..158
Arthritis, Medical Management of Chronic. Frank Billings, Chicago.....164
Assistant Surgeon Examination. (E)198
Attentive Control, Re-Education of. G. Wilse Robinson, Kansas City, Mo.....362
Auto Sparks & Kicks:
Acetylene Burners in Kerosene Lamps.....37
Benzol and Paraffin as Auxiliary Fuels.....37
Camphor as Vitalizing Agent135
Cement Garages461
Driving Hint37
Elgin's Tire Story.....199
Glycerine Solution for Summer Running135
Homemade Oxygen Plant Decarbonizes Cylinders...461
In Case of Emergency.....37
Non-Freezing Solutions....546
Peroxide in Gasoline...135, 546
Pneumatic Tire Deflation Alarm199
Scratch on Varnish.....199
Tires, How to Keep.....546
To Avoid Breaking an Arm.135
To Secure Soft Riding.....37

Washing Cars199
Auto-Intoxication533
Auto-Intoxication and Eye Diseases. Clark W. Hawley, Chicago473

B

Bartow, Edward. Paper....577
Beck, Jos. C. Discussion..619, 621
Beck, Jos. C. Case.....624
Beck, Jos. C. Discussion...65, 69, 136, 141, 465, 467, 470, 471
Beck, Jos. C. Paper.....510
Bergeron, J. Z. Discussion...404
Billings, Frank. Discussion ..81
Billings, Frank. Paper.....164
Blankmeyer, H. C. Paper.184, 537
Blindness354
Blindness, Causes of.....187
Blindness, Cost of to the State. Thomas Woodruff479
Blindness, What State Can Do to Prevent. Willis O. Nance, Chicago479
Bliss, Dr. Discussion.....361, 366, 404
Bliss, Geo. Paper.....424
Blood, Coagulation Time of in Epileptics. D. A. Thom, Palmer, Mass.382
Blood Pressure, Some Considerations of. G. S. Bower, Galesburg21
Blood Pressure, Value of in Interpreting Clinical Manifestations. H. A. Cables, E. St. Louis.....28
Book Notices:
American Medical Directory, 191476
Anoci-Association. Geo. W. Crile219
Anesthesia, Local and Regional. Carrol W. Allen..635
Biological Therapeutics. Parke, Davis & Co.....634
Blood Pressure; Clinical Application. Geo. W. Norris.219

- Blood Pressure in Medicine and Surgery. E. H. Goodman 75
- Clinical Medicine. W. H. Thomson 219
- Clinics of John B. Murphy..... 220, 566
- Collected Papers, Research Laboratory of Parke, Davis & Co. 220
- Dietetics, or Food in Health and Disease. Wm. Tibbles 220
- Diseases of Bones and Joints. Leonard W. Ely..... 220
- Diseases of Rectum and Colon and Surgical Treatment. Jerome M. Lynch.. 152
- Diseases of the Nose and Throat. Jonathan Wright. 566
- Eye, Ear, Nose and Throat. Wood, Andrews & Ballenger 152
- Food Products. Henry C. Sherman 634
- General Medicine. Frank Billings 152
- General Medicine. Frank Billings and J. H. Salisbury 566
- General Surgery. John B. Murphy 152
- Gynecology. E. C. Dudley and H. M. Stowe..... 566
- Handbook of Psychology and Mental Diseases. C. B. Burr 152
- Hospital of the P. E. Church in Philadelphia..... 152
- Human Anatomy. Morris C. M. Jackson 634
- Infant Feeding. C. G. Cru-lee 75
- Medical Diagnosis. Jas. M. Anders 220
- Medical Jurisprudence. Elmer D. Brothers..... 636
- Medical Symposium Series. Tuberculosis 636
- Modern Medicine, Vol. 3. Sir Wm. Osler..... 152
- Murphy, John B. Clinics... 635
- Nervous and Mental Dis-eases. Joseph D. Nagel.. 566
- Obstetrics. Edward P. Davis. 635
- Obstetrics. W. P. Manton.. 635
- Pathogenic Microorganisms. Park and Williams..... 635
- Pathology; Text Book. J. G. Adami and John McCrae 565
- Pediatrics, Epitome of. Henry E. Tuley..... 566
- Pediatrics and Orthopedic Surgery. Isaac A. Abt and John Ridlon 566
- Practical Therapeutics. Hobart Amory Hare..... 565
- Radium and Radiotherapy. W. S. Newcomet..... 75
- Sex Talks to Boys. David Steinhardt 75
- Surgery, Operative, of the Nose, Throat and Ear. H. W. Loeb, et al..... 636
- Surgical Practice, Guiding Principles in. Fred E. Meef 220
- Therapeutics, Practical. Daniel M. Hoyt..... 75
- Tonsils. Harry A. Barnes.. 636
- Tuberculosis, Recent Studies of 75
- Worry and Nervousness. W. S. Sandler 636
- Boot, Geo. W. Discussion... 203
- Boot, Geo. W. Case..... 621
- Bouton, William C. Paper... 567
- Bowers, Paul E. Paper..... 257
- Brain, Heredity and Hygiene. J. T. Searcy, Tuscaloosa, Ala. 264
- Brain Cyst. H. Kahn..... 620
- Brain, Organic Lesions of in Mental Defectives 394
- Brawley, Dr. Discussion.... 473
- Breakstone, Benj. H. Discussion 100
- Committee Report 547
- Bronchoscopy, Fluoroscopic. E. Fletcher Ingals and Stanton A. Friedberg..... 208
- Brophy, Truman W. Paper.. 137
- Brown, E. M. Discussion.... 15
- Brown, R. H. Discussion.... 456
- Brown, R. H. Discussion.. 619, 626
- Burkhardt, C. F. Paper..... 517
- Burkholder, J. F. Discussion. 210
- C
- Carter, Chas. W. Paper.... 127
- Case, Jas. T. Paper..... 153
- Cataract, Intra-Capsular Operation of Lieut. Col. Henry Smith of India. W. L. Noble, Chicago..... 487
- Cataract, Senile; Treatment by General Practitioner. W. A. Fisher, Chicago..... 492
- Cavanaugh, Dr. Discussion.. 142
- Cavanaugh, John A. Paper... 520
- Cerebellum, Relation to the Labyrinth. T. L. Long, Cherokee, Ia..... 296
- Certified Milk. R. R. Ferguson, Chicago 597
- Chess Players, Mental States in Famous. Louis Miller, Toledo, Ohio..... 414
- Chicago as Medical Center of the U. S. (E)..... 541
- Chicago Medical Society Election. (E) 33
- Chicago Tuberculosis Institute. (E) 544
- Children, Tests for Exceptional Development in. M. P. E. Groszmann, Plainfield, N. J. 388
- Choked Disc. Geo. F. Suker.. 212
- Church, Archibald. Discussion 14
- Civil Service Examinations. Notice. (E) 613
- Clark, S. N. Paper..... 289
- Clark, Jas. A. Address..... 222
- Clark, J. Sheldon. Discussion. 529
- Clay, Arthur J. Paper..... 103
- Cohn, Dr. Discussion.... 272, 292
- Colitis, Acute Ulcerative. H. A. Haskell, Jacksonville.... 595
- Committee Report, A. (E).. 543
- Congress on Anesthesia. (E). 612
- Control, Attentive..... 362
- Convulsions, Epileptoid in Alcoholics and Relation to Epilepsy. Edwin W. Katzen-Ellenbogen, Trenton, N. J. 370
- Cook County Psychopathic Hospital. H. I. Davis, Chicago 339
- Cooley, Dr. E. B. Candidate for Congressional Honors. (E) 133
- Corbus, B. C. Paper..... 112
- Correspondence:
- Folonie, R. J..... 36
- For the Physicians of Afflicted Belgium 613
- Roane, J. Q. "Beware This Faker" 36
- Think Doctors Easy Marks.. 614
- Corwin, Arthur M. Discussion 467
- Corwin, Arthur M. Paper.. 400, 465
- Court, Medicopsychological Work In 359
- Criminal, Pathological Characteristics of the Habitual. Paul E. Bowers, Michigan City, Ind. 257
- Criminality 273
- Crohn, Dr. Discussion... 358, 362

D

- Davis, David John. Paper... 158, 206
- Davis, H. I. Paper.....339
- Deaf, Lip Reading for the Adult. Miss Gertrude Torrey, Chicago136
- Deal, Don W. Paper.....171
- Dean, L. W. Discussion.....204, 209, 472
- Dean, L. W. Paper.....463
- Deaths:
- Bacon, Charles H., Lockport, Ill.483
- Barstow, Charles Franklin, Freeport, Ill.482
- Bonnell, William Wayland, Astoria, Ill.151
- Brewer, Horatio S., Chicago 74
- Briggs, Robert, Clayton, Ill. 564
- Brundage, Alfred Royce, Chicago216
- Carnes, Harry H., Campaign, Ill.151
- Carroll, William Bayard, Chicago 74
- Chaffee, Frederick F., Chicago483
- Clark, L. W., Cartersville, Ill. 151
- Clarke, Albert S., Bushnell, Ill.151
- Colby, Benjamin Dorr, Chicago482
- Corr, Lucinda Hall, Carlinville, Ill.482
- Coulter, Adrian B., Chicago 74
- De Mendoza, Arthur Hurtado, Piper City, Ill.151
- Dinges, Henry A., Red Bud, Ill. 74
- Dunn, D. Winton, Duquoin, Ill. 74
- Dyas, Webster M., Arlington Heights, Ill.216
- Eldred, William Henry, Chicago 216
- Erstling, Maude L. Dunn, Chicago564
- Flack, William D., Farmington, Ill.482
- Greeley, Henry Parkhurst, Lee, Ill.217
- Grosvenor, Lemuel Conant, Taunton, Mass.217
- Hallam, John C., Centralia, Ill.483
- Hammer, Arthur Wesley, Chicago483
- Harmison, David C., Havana630
- Hassett, James Jerome, McLeansboro630
- Howard, William Edward, Ohio, Ill.217
- Jeffries, John A., St. Louis, Mo. 74
- Lane, John H., Medora, Ill. 482
- Lee, George Harvey, Kankakee, Ill.217
- Lindeblad, Carl G., Albuquerque, N. M.216
- Markland, William Perry, Cuba, Ill.564
- McKee, Henry T., Sparta, Ill.217
- McMurdo, William Wilford, Marissa, Ill.216
- Miller, David Phillip, Chicago217
- Montgomery, Liston Homer, Chicago483
- Murphy, Veda C., Chipperfield, Cuba630
- Newell, Amos Jesse, West Pullman630
- Niles, John Whiting, Chicago630
- Parker, Edwin Stanton, Vermont, Ill.74, 217
- Piotrowski, Stanley Michael, Chicago630
- Ragan, Gillum Taylor, Neoga, Ill.216
- Redlich, Henry, Chicago....482
- Reefy, Solomon L., Edinburg, Ill.216
- Rice, Nathaniel Brown, Chicago 74
- Roberts, Emma J., Chicago. 74
- Ryan, David Alexander, Chicago 74
- Scott, Lee Osborne, Rockford, Ill.216
- Segerlund, Charles, Caladonia, Ill.217
- Sherman, Paul, Shawneetown, Ill.151
- Simons, Charles Jenks, Chicago 74
- Small, Abram L., Kankakee630
- Spalding, Leonard H., Rochester, Minn.482
- Steere, Harold Haines, Chicago151
- Stratford, Henry Knox, Chicago217
- Thoumaian, Hagop H., St. Anne, Ill.216
- Vredenburg, Samuel Hamilton, Danville630
- Ward, Milan Theron, Toulon, Ill.216
- Ward, Nathaniel P., Saybrook, Ill.482
- Warren, Albert Roderick, Pekin, Ill.216
- Webster, John P., Pasadena, Cal. 74
- Westfall, Alonzo M. W., Prairie City630
- Williams, Edwin E., Streator, Ill. 74
- Willis, William H., Peoria, Ill.217
- Wright, Samuel B., Stanford, Ill. 74
- Defective Individuals, Duty of the State to. W. S. Lindsay, Topeka, Kas.230
- Defectives, Mental, Care of...348
- Defectives, Organic Brain Lesions in Mental. William J. Hickson, Chicago.....394
- Deficiency, Mental400, 404
- Degeneracy292
- Dementia Praecox, Abderhalden Reaction in. Albert E. Sterne, Indianapolis, Ind.327
- Dementia Praecox, A Case of. Walter Lewis Treadway, Ellis Island, N. Y.452
- Dementia Praecox, Diagnosis and Treatment of. Bayard Holmes, Chicago.....332
- Dementia Praecox; Treatment. H. A. Lindsay, Independence, Ia.324
- Diarrheal Diseases and Hot Weather149
- Diller, Theo. A. Discussion..232, 272
- Diller, Theodore. Paper....322
- Diphtheria Bacillus, Pleomorphic Aspects of. A. L. Mann, Elgin463
- Diploic Abscess. Geo. F. Suker212
- Diseases, Mental...227, 313, 411
- Dodd, Oscar. Paper.....404
- Dodds, Samuel. Poem.....539
- Dollear, Dr. Discussion..... 13
- Drake, F. I. Paper.....292
- Duodenal Semi-stasis a Principal Factor in Auto-Intoxication. C. E. Howard, Lewistown533

E

Editorials:

- Actions for Civil Malpractice196
- Actions for Civil Malpractice612

- Alienists and Neurologists..457
 Alienists and Neurologists,
 Meeting of.....33, 131
 Alienists and Neurologists,
 Proceedings194
 Alienists and Neurologists,
 Resolutions of.....131
 Army Medical Corps Exam-
 inations545
 Assistant Surgeon Examina-
 tion198
 Chicago as Medical Center
 of the U. S.....541
 Chicago Medical Society
 Election 33
 Chicago Tuberculosis Insti-
 tute544
 Civil Service Examination,
 Notice613
 Committee Report, A.....543
 Congress on Anesthesia....612
 Cooley, Dr. E. B., Candidate
 for Congressional Honors.133
 Farrell, Dr. P. J. H., a Can-
 didate for Congress.....197
 Folonie's (Mr.) Articles....
 196, 544
 Foot and Mouth Disease...611
 Harrison Anti-Narcotic Bill.194
 Medical Society of the Mis-
 souri Valley Meeting....198
 Medico-Economic League... 34
 Merrill, Dr. Julia Dyer.... 35
 Merry Christmas611
 Neo-Malthusians458
 Notice. Civil Service Exam-
 ination613
 October Journal541
 Quailes, Dr. Niles Theodore. 35
 Resolutions of Southern Illi-
 nois Med. Assn.613
 Riggs, Dr. John P., Candi-
 date for Congressman at
 Large197
 Southern Illinois Medical
 Assn. Program.....459
 Tuberculosis Notes.....
 34, 134, 197, 545
 Edmondson, E. E. Discussion
 497, 501
 Emotional Factor in Etiology.273
 Epilepsy370
 Epilepsy, Prevention of. O. S.
 Hubbard, Parsons, Kas....366
 Epilepsy, Report of Committee
 on Prevention of, and Care
 of Epileptics383
 Epilepsy, Social Aspects of.
 Mr. Morris D. Lynch, Chi-
 cago378
 Epileptics, Coagulation Time
 of Blood in.....382
 Epileptics, Public and Private
 Care of, in U. S. and Can-
 ada. Wm. C. Graves, Chi-
 cago373
 Equilibrium 63
 Esophagoscopy. Stanton A.
 Friedberg, Chicago..... 67
 Evans, W. A. Paper.....425
 Eye, Prognosis of Injuries.
 Richard J. Tivnen.....474
 Eye, Pneumococcic Infections
 of. Harry S. Gradle.....475
 Eyes, Relation of to Mental
 Deficiency. Oscar Dodd,
 Chicago404
 Eye and Ear, Inheritance with
 Reference to499
- F
- Fairbrother, H. C. Discussion.183
 Faith, Thomas. Discussion ..497
 Faith, Thomas. Paper.....530
 Farrell, Dr. P. J. H., a Candi-
 date for Congressional Hon-
 ors. (E)133
 Feeble-Minded, Environment
 and Social Relation. H. C.
 Kehoe, Frankfort, Ky.....407
 Feeble-Minded Children, Ner-
 vous and Mental Findings in.
 J. J. Mendelsohn, Lincoln,
 Ill.409
 Feeble-Mindedness, Relation of
 Syphilis to424
 Ferguson, R. R. Paper.....579
 Ferguson, Robert Henry. Pa-
 per 81
 Fisher, J. C. Paper.....499
 Fisher, W. A. Paper.....492
 Fletcher, J. F. Discussion....
 137, 141, 207, 470, 471
 Fletcher, J. R. Discussion....
 619, 620
 Foley, E. A. Paper.....346
 Folonie's (Mr.) Articles. (E)
 196, 544
 Folonie, Robt. J. Paper.....
 196, 457, 544
 Foot and Mouth Disease. (E).611
 Franz, C. H. Discussion....345
 Freer, Otto T. Discussion...140
 Freer, Otto T. Paper.....501
 Friedberg, Stanton A. Paper
 67, 208
 Friedman, Jos. C. Paper....166
 Fringer, W. R. Paper.....528
 Fusion Faculty as a Type. M.
 Z. Albro210
- G
- Gahagan, H. J. Paper.....343
 Gangrene, Arterio-Venous An-
 astomosis in. Don W. Deal,
 Springfield171
 Gastroscopy and Sussman Gas-
 troscope. A. A. Goldsmith,
 Chicago169
 Gastro-Intestinal Diseases,
 Treatment. Frederick J.
 Leemann, Chicago605
 Gehrmann, Adolph. Discus-
 sion339
 Gehrmann, Adolph. Paper...335
 Genito-Urinary Diseases, Di-
 agnosis of. Walter Wil-
 helmj, E. St. Louis.....585
 Glaucoma, An Etiological Fac-
 tor in Insanity. Carl B.
 Welton, Peoria209
 Glaucoma Following Cataract
 Extraction. M. H. Leben-
 sohn472
 Glaucoma, Indications for
 Operative Interference.
 Harry S. Gradle, Chicago..495
 Goiter, Simple, A Compensa-
 tory Hypertrophy. C. B. Bu-
 ford, Chicago..... 7
 Golden, I. J. K. Discussion... 15
 Goldsmith, A. A. Discussion.108
 Goldsmith, A. A. Paper....169
 Gonorrheal Urethritis181
 Gradle, Harry S. Paper..475, 495
 Graves, Mr. Wm. C. Paper..373
 Green, E. M. Paper.....445
 Grinker, Julius. Discussion..
 321, 353, 250, 400
 Grinker, Julius. Discussion...
 621, 622, 626
 Grinker, Julius. Paper.....250
 Groszmann, M. P. E. Paper..388
 Grulee, C. G. Discussion....127
 Guggenheim, Louis K. Dis-
 cussion65, 69
- H
- Haeberlin, John D. Discus-
 sion169
 Hagens, C. J. Discussion....618
 Hall, Geo. W. Paper.....437
 Hamburger, W. W. Paper...166
 Hamill, Ralph C. Paper..431, 437
 Harrison Anti-Narcotic Bill.
 (E)194
 Haseltine, Burton. Discussion.468
 Haskell, H. A. Paper.....595
 Hawley, Clark W. Discussion.474
 Hawley, Clark W. Paper....473

- Hay Fever, Specific Treatment
of by Active Immunization.
Karl K. Koessler, Chicago...120
- Healy, William. Paper.....359
- Heart Disease, Relation of Pre-
cordial Pain to. Jos. M. Pat-
ton, Chicago 77
- Herpes Zoster Oticus. Joseph
C. Beck624
- Hickson, W. J. Discussion...338
- Hickson, W. J. Paper394
- Hill, Emory. Discussion....530
- Hill, Emory. Paper 92
- Hobbies. H. C. Blankmeyer,
Springfield184
- Holinger, J. Discussion.....621
- Holinger, J. Discussion.....
.....95, 137, 142, 203, 466, 468
- Holinger, J. Paper469
- Holmes, Bayard. Discussion.
.....339, 372
- Holmes, Bayard. Paper332
- Howard, C. E. Paper.....533
- Hubbard, O. S. Discussion..373
- Hubbard, O. S. Paper366
- Hydrorrhea, Nasal, Etiology.
Harry Kahn, Chicago..... 66
- Hydrotherapy in Treatment of
the Insane. A. H. Doller,
Hospital, Ill. 31
- Hypophysis, Tumor of with
Operation. Emory Hill, Chi-
cago 92
- I
- Illinois School for the Blind
and Causes of Blindness. A.
L. Adams, Jacksonville....187
- Illinois State Medical Society,
Needs and Purposes of.
Chas. J. Whalen, Chicago... 1
- Infantilism with Hypophyseal
Insufficiency. E. Bosworth
McCready, Pittsburg, Pa...385
- Ingals, E. Fletcher. Paper...208
- Inheritance with Reference to
the Eye and Ear. J. C.
Fisher, Decatur499
- Insane, Commitment of in the
U. S. Theodore Diller, Pitts-
burg, Pa.322
- Insane, Pedagogy Among the
Chronic. Edward F. Leon-
ard. Chicago255
- Insane, Surgery in Hospitals
for445
- Insane, Treatment by Hydro-
therapy 31
- Insanity273
- Insanity, Diagnosis of. Julius
Grinker, Chicago.....250
- Insanity, Report of Committee
on Prevention of.....387
- Insight in Cases Recovered
From Manic Depressive At-
tacks. S. N. Clark, Kanka-
kee289
- Irons, E. E. Discussion.....618
- J
- Jacobs, Chas. M. Paper.....118
- Joint Disease, Roentgenology
of Chronic153
- K
- Kahn, H. Case.....620
- Kahn, Harry. Paper..... 66
- Katzen-Ellenbogen, Edwin W.
Paper370
- Kehoe, H. C. Paper.....407
- Kenyon, E. L. Discussion....136
- Kenyon, E. L. Case622
- Kenyon, E. L. Discussion....619
- Kenyon, Elmer L. Paper.... 95
- Kidney Infections. J. C. R.
Wettstein, Effingham590
- King, Cheston. Paper.....227
- Koessler, Karl K. Paper...120
- Koll, Irvin S. Paper.....181
- Koppnagle, Dr. Discussion...
.....296, 321, 353
- L
- Labensohn, M. H. Paper....472
- Laboratories, Functions of
Municipal. Edward Bartow,
Urbana577
- Labyrinth, Relation of Cere-
bellum to296
- Lange Gold Colloid Test.
Louis D. Smith.....420
- Langer, Carl. Discussion....618
- Larynx, Topography of the.
John A. Cavanaugh, Chicago.520
- Leonard, Edw. F. Paper....255
- Lesemann, F. J. Paper.....605
- Levitin, E. Z. Paper.....448
- Lewis, Dr. Discussion..232, 295
- Lewy, Alfred. Paper.....466
- Lindsay, H. A. Discussion..373
- Lindsay, H. A. Paper.....324
- Lindsay, W. S. Discussion..272
- Lindsay, W. S. Paper.....230
- Locomotor Ataxia, Importance
of Early Diagnosis. Ralph
C. Hamill, Chicago.....431
- Loeb, H. W. Discussion.... 66
- Loeb, H. W. Discussion....626
- Long, T. J. Paper.....296
- Lynch, Mr. Morris D. Paper.378
- M
- Maclay, Otis H. Discussion..613
- Maclay, Otis H. Discussion..
.....142, 207
- Mal-Practice, Action for Civil
.....196, 457, 544
- Mann, A. L. Paper.....463
- Marriages:
- Anthony, Paul Henry, Mor-
ris, Ill.216
- Armstrong, Edward Kent,
Chicago216
- Becker, William Frederick,
Chicago630
- Braude, Morris, Chicago....630
- Brian, Frederick Willard,
Bloomington630
- Bridge, William C., Elgin,
Ill.564
- Brinkerhoff, Cleaver Henry,
Chicago 74
- Burkhart, Hada M., Rock
Island, Ill.564
- Calvert, Arthur Monroe,
Chicago482
- Collins, Francis Augustine,
Chicago564
- Conroy, Francis James, Ster-
ling, Ill. 74
- Dawson, Drexel Lowry, Chi-
cago151
- Dohrmann, George, Chicago. 74
- Fishbein, Morris, Chicago...151
- Griswold, Ross William,
Litchfield, Ill.151
- Hagie, Franklin Eugene,
Elizabeth, Ill.151
- Hammon, Walter Charles,
Chicago564
- Hecker, Charles Henry, St.
Louis, Mo.564
- Hector, William S., Chicago.482
- Hoffman, Louis George, Chi-
cago564
- Lilly, John Matthew, Chi-
cago 74
- MacPherson, Charles H.,
Modesto, Ill.482
- McCary, Arthur James, Chi-
cago564
- McCary, Arthur, Chicago..630
- McCormack, Alexander Ed-
win, Elgin, Ill.....482
- Montgomery, Albert Horr,
Chicago482
- Mostrom, Henning Theo-
dore, Geneva, Ill.....564
- Munch, Frederick Elmer,
Chicago630

- Newcomb, Cyrus F., Campaign, Ill.564
- Otrich, Grover Cleveland, Belleville630
- Pollock, Lewis John, Chicago74
- Rawlings, Isaac Donaldson, Chicago630
- Reagan, Thomas Harold, Canton, Ill.151
- Rose, Charles Merrill, Galesburg, Ill.482
- Schmidt, Charles Henry, Chicago74
- Sihler, Geo. A.74
- Spitze, Edward C., East St. Louis, Ill.74
- Stines, Thomas Irving, East St. Louis, Ill.216
- Welch, James W., Cuba, Ill. 74
- Wherritt, David Henry, Chicago151
- Wilcox, Bert George, Joliet.630
- Yerger, Charles Frances, Chicago630
- Mastoid Operation. Geo. W. Boot621
- Maxilla, Necrosis of. L. W. Dean, Iowa City, Ia.463
- McBean, Geo. M. Paper....204
- McCowen, Miss Mary. Discussion136
- McCready, E. Bosworth. Paper385
- McGregor, Robt. Discussion.. 13
- Measles, How It Spreads....460
- Medical Gilberts. Samuel Dodds539
- Medical Society of the Missouri Valley Meeting. (E).198
- Medico-Economic League. (E) 34
- Medicopsychological Work in Courts. Wm. Healy, Chicago359
- Mefford, W. T. Discussion...471
- Mefford, W. T. Paper.....428
- Mendelsohn, J. J. Paper....409
- Mental Defectives394
- Mental Diseases227
- Mental Disease, Physical Cause of. Carl W. Sawyer, Marion, O.411
- Mental Forces, Conservation of. E. A. Foley, Jacksonville, Ill.346
- Merrill, Dr. Julia Dyer. (E). 35
- Merry Christmas. (E).....611
- Mettler, L. Harrison. Address.221
- Milk, Certified579
- Milk Problem. M. W. Snell, Litchfield582
- Milk Sickness. Arthur J. Clay, Hoopeston103
- Miller, Jos. L. Discussion... 15
- Mitchell, J. T. Paper.....600
- Miller, Louis. Paper.....414
- Moore, Ross. Discussion... 13
- Mortality273
- Munro, Henry S. Discussion.233
- Munro, Henry S. Paper....273
- N
- Nance, Willis O. Paper.....479
- Neo-Malthusians. (E).....458
- Neosalvarsan, Intraspinal Injections of. Geo. W. Hall and Ralph C. Hamill, Chicago437
- Neosalvarsan, Intravenous Injection. E. Sargent, Moline.192
- Nervous and Mental Diseases, Prevention of. C. F. Neu, Indianapolis, Ind.313
- Nervous and Mental Diseases, Society Responsible for. Cheston King, Atlanta, Ga.227
- Neu, Dr. Discussion.....296
- Neu, Dr. Paper.....313
- New and Non-Official Remedies76, 217
- News Notes147, 215, 481, 561
- Noble, W. L. Paper.....487
- Norbury, Frank P. Discussion100
- Norbury, Frank P. Paper...174
- Notice. Civil Service Examination. (E)613
- O
- October Journal. (E)541
- Olson, Judge Harry. Address.223
- Olson, Judge Harry. Discussion234
- Ophthalmia Neonatorum, Blindness Due to. Richard J. Tivnen.478
- Ophthalmic Science in the U. S., an Endowed School of Refraction. J. Whitefield Smith, Bloomington.513
- Optic Nerve—See Choked Disk.
- Otolaryngology, Rhinology and Dentistry, Interdependence of. Jos. C. Beck, Chicago..510
- P
- Page, John Franklin. Discussion178
- Palate, Cleft and Speech....622
- Palsy, Bilateral Peripheral Facial. T. B. Throckmorton, Des Moines, Ia.24
- Paresis, Transient Lesions in Early. B. F. Williams, Lincoln, Neb.43
- Patton, Jos. M. Paper.....7
- Pellagra, Psychosis Accompanying. A. A. Thurlow, Norman, Okla.34
- Pemphigus. Robert Sonnen-schein, Chicago.....47
- Personals....71, 147, 215, 480, 56
- Pettit, J. W. Paper.....171
- Pogue, Mary. Paper.....341
- Pratt, E. C. Paper.....571
- Presenile Psychosis. E. Z. Levitin, Peoria441
- Price, Jas. Russell. Discussion351
- Psychiatry, Relation to Medicine. Chas. Ricksher, Kan-kakee241
- Psychoneuroses and Their Treatment. Frank P. Norbury, Springfield174
- Psychosis of Pellagra.....342
- Psychosis, Spurious and Genuine Treatment of. Tom A. Williams, Washington, D. C.303
- Psychosis, Presenile445
- Public Health:
- Department Wins Fight for Fresh Air540
- Hot Weather and Deaths from Diarrheal Diseases..149
- Measles460
- School Ventilation218
- Smallpox130
- Tuberculosis Quarantine...535
- Punton, Dr. Discussion.....233
- Pus Infections, Treated by Autogenous Vaccines..... 23
- Pusey, William Allen. Paper.440
- Pylorus and Gastric Ulcer....166
- Pynchon, E. Discussion....466
- Q
- Quales, Dr. Niles Theodore. (E)35
- R
- Radium, Uses in Skin Diseases. Frank E. Simpson, Chicago.101
- Read, Chas. F. Paper.....267
- Refraction, Endowed School of513
- Resolutions of Southern Ill. Med. Assn. (E).....613

- Restraint, Indications for. H. J. Gahagan, Elgin.....343
 Rheumatoid Arthritis158
 Rheumatism in Children. Jos. Brennemann, Chicago..... 16
 Ricksher, Chas. Paper.....244
 Riggs, Dr. J. P., Candidate for Congressman at Large. (E)197
 Robertson, C. M. Discussion.622, 624, 626
 Robertson, C. M. Discussion.138, 143, 205
 Robertson, G. Wilse. Paper..362
 Roentgenology of Chronic Joint Disease. Jas. T. Case, Battle Creek, Mich.....153
- S**
- Salvarsan in Treatment of Syphilis. William Allen Pusey, Chicago440
 Sargent, E. Paper.....192
 Sawyer, Carl W. Paper....411
 Searcy, J. T. Paper.....264
 Semi-Circular Canals, Roll of in Function of Equilibrium. Geo. E. Shambaugh, Chicago 63
 Sermon, A. Booster. Chas. W. Carter, Clinton127
 Shambaugh, Geo. E. Case....619
 Shambaugh, Geo. E. Case Report203
 Shambaugh, Dr. Discussion.141, 204, 206, 470, 467
 Shambaugh, Geo. E. Paper... ..63, 526
 Sidwell, C. E. Paper.....418
 Simpson, Frank E. Paper...101
 Simpson, Jesse P. Discussion.100
 Singer, Dr. Discussion.....312, 339, 342
 Singer, Nodule on Vocal Cord. Otto J. Stein619
 Sinus Disease, Frontal. J. Holinger469
 Sinus Disease, Sphenoid.....204
 Sinus, Thrombosis of Sup. Long.621
 Sinusitis, Frontal and Ethmoid. Geo. E. Shambaugh.619
 Sluder, Greenfield. Discussion 67
 Smith, J. Whitefield. Paper..513
 Smith, Louis D. Paper...418, 420
 Smith, M. H. Paper.....108
 Smithies, Frank. Discussion.127
 Snell, W. M. Paper.....582
 Society Proceedings:
 Adams County, Aug. 10 and Sept. 14, 1914.....462
 Adams County, Nov. 9, 1914617
 Adams County, Oct. 12, 1914.547
 Clark County, Oct. 8, 1914..547
 Coles County, July 7, 1914..145
 Cook County:
 Chicago Medical Society, May 27, June 3, June 10, June 17, 1914..... 58
 Chicago Medical Society, Oct. 7, 14, 21, 28, Nov. 4, 11, 18, 25.....617
 Alienists and Neurologists Meeting, Preliminary Program 59
 Abuse of Medical Charities Committee Report.547
 Chicago Laryn. & Oto. Society, Dec. 16, 1914.....136
 Chicago Laryn. & Oto. Society, Feb. 17, 1914.....203
 Chicago Laryn. & Oto. Society, March 17, 1914...463
 Chicago Laryn. & Oto. and St. Louis Laryn. Society, Nov. 29, 1914..... 63
 Englewood Branch, June 2, 1914..... 58
 Englewood Branch, Oct. 16, 1914556
 Englewood Branch, Nov. 3, 1914618
 Chicago Ophthalmological Society, March 16, 1914.209
 Chicago Laryngological & Otol. Soc.619
 Chicago Ophthalmological Society, April 20, 1914..472
 Chicago Ophthal. & Chicago Medical, May 13, 1914476
 DeKalb County, Nov. 6, 1914626
 Edgar County626
 Fulton County, 68th Meeting.213
 Fulton County, Oct. 6, 1914.557
 Gallatin County, July 1, 1914.143
 Greene County, Sept. 11, 1914558
 Hancock County, July 6, 1914144
 Hancock County, Oct. 5, 1914558
 Illinois State Medical Society, 64th Annual Meeting:
 Auditor's Report 57
 Chairman of the Council Report 44
 Councilor's Report 46
 General Session 40
 House of Delegates, Minutes 42
 Medical Education Committee Report 49
 Medical Legislation Committee Report 48
 Medico-Legal Committee Report 47
 National Department of Health Committee Report 55
 President's Report 46
 Public Policy Committee Report 55
 Secretary's Conference.... 38
 Secretary's Report 42
 Section on Eye, Ear, Nose and Throat 39
 Sections 1 and 2..... 38
 Treasurer's Report 45
 County Secretaries' Conference, May 19, 1914...200
 Illinois State Surgical Society, May 19, 1914..... 61
 Iroquois-Ford County, June 2, 1914 69
 Jefferson County, June 18, 1914144
 Knox County, April 16, 1914 69
 Lake County, June 16, 1914. 70
 Sept. 25, 1914.....559
 Macoupin County213
 Madison County, July 3, 1914145
 Marshall-Putnam County, May 12, 1914..... 70
 McHenry County, April 30, June 18, 1914.....146
 McHenry County, July 31, 1914, Aug. 28, 1914.....462
 McHenry County, Sept. 25, 1914559
 Mercer County, May 5, 1914 71
 Ogle County, August, 1914..214
 Rock Island County, Oct. 13, 1914560
 Shelby County, July 23, 1914.214
 Wabash County, Nov. 17, 1914627
 Winnebago County, Sept. 8, 1914462
 Winnebago County, Oct. 13, 1914560
 Woodford County, May 5, 1914 71
 Woodford County, July 10, 1914, Oct. 6, 1914.....560
 Solomon, Meyer. Discussion. ..233, 254, 263, 292, 312, 353, 373
 Solomon, Meyer. Paper.....234
 Sonnenschein, Robert. Discus-

- Sonnenschein, Robert. Paper. 471
 Sonnenschein, Robt. Discussion 624
 Southern Illinois Medical Assn. Program. (E)..... 459
 Speech Aspects of Cleft Palate. E. L. Kenyon 622
 Sphenoid Sinus Disease. Geo. M. McBean..... 204
 Spirochaeta Pallida, Demonstration of. C. E. Sidwell and Lewis D. Smith, Chicago 418
 Squint, Prognosis in. Thomas Faith, Chicago 530
 Stammering Child, Problem of. Elmer L. Kenyon, Chicago.. 95
 Stein, Otto J. Discussion.... 67, 206, 208, 470, 471
 Stein, Otto J. Paper..... 619
 Stein, Otto J. Paper..... 64
 Sterilization, Segregation or Custodial Care of Mental Defectives. Mary Pogue, Lake Geneva, Wis..... 348
 Sterne, Albert E. Discussion 250, 254, 320, 339
 Sterne, Albert E. Paper..... 327
 Stout, Dr. Discussion..... 233
 Strabismus, Importance of Early Treatment in Infants. W. R. Fringer, Rockford.. 528
 Strabismus, Prognosis 530
 Strongyloides Intestinalis. H. C. Blankmeyer, Springfield.. 537
 Suicide, Criminality, Insanity and Mortality, Emotional Factor in. Henry S. Munro, Omaha, Neb. 273
 Suker, Geo. F. Paper..... 212
 Surgery in Hospitals for the Insane. E. M. Green, Milledgeville, Ga. 445
 Syphilis, Committee on Prevention of 439
 Syphilis, Further Advancement in our Studies of. B. C. Corbus, Chicago..... 112
 Syphilis of the Ear. Otto J. Stein, Chicago..... 64
 Syphilis, Relation to Feeble-Mindedness. George Bliss, Ft. Wayne, Ind..... 424
 Syphilis, Salvarsan in Treatment of 440
 T
 Tests of Exceptional Development in Children..... 388
 Thom, D. A. Paper..... 382
 Thompson, Wm. M. Discussion 14
 Throckmorton, T. B. Discussion 254
 Throckmorton, T. B. Paper.. 247
 Thurlow, A. A. Paper..... 342
 Tivnen, R. J. Discussion.... 517
 Tivnen, R. J. Paper.... 474, 478
 Tonsil Removal by Knife Dissection. O. T. Freer, Chicago 501
 Tonsillectomy. Alfred Lewy.. 466
 Tonsils, Actinomyces-Like Granules in. David J. Davis. 206
 Tonsils, Chronically Affected Faucial. Geo. E. Shambaugh, Chicago 526
 Tonsils, Function of Faucial and Indications for Their Removal. C. F. Burkhardt, Effingham 517
 Tonsils and Mental Deficiency. 400
 Torrey, Miss Gertrude. Paper. 136
 Town, Clara Harrison. Discussion 417
 Town, Clara Harrison. Paper. 354
 Trichinosis. Paul Chester, Chicago 27
 Tuberculosis Notes. (E)..... 34, 134, 197, 545
 Tuberculosis, Pulmonary, Present Status of Treatment. J. W. Pettit, Ottawa..... 178
 Tuberculous Spine Disease, Bone Transplantation for. Chas. M. Jacobs, Chicago... 118
 Tumor of Hypophysis..... 92
 Tydings, Oliver. Discussion.. 529
 Typhoid Fever, Case Reports. Paul Chester, Chicago..... 27
 Typhoid Vaccination. E. C. Pratt, Kankakee 573
 U
 Ulcer, Gastric, Role of Pylorus in Etiology and Treatment of. Joseph C. Friedman and W. W. Hamburger, Chicago. 166
 Urethritis, Gonorrheal; 200 Cases Without Complication. Irvin S. Koll, Chicago..... 181
 V
 Vaccines, Autogenous, in Treatment of Chronic Pus Infections. Max L. Mendel, Chicago 23
 Venereal Diseases, Control of. W. A. Evans, Chicago..... 425
 Vision, Conservation of. Frank Allport 476
 Visual Imagery, Contribution to Verbal Thought. Clara Harrison Town, Lincoln.... 354
 W
 Wasserman Test, Technic for. W. T. Mefford, Chicago... 428
 Welton, C. B. Discussion.... 497
 Welton, Carl B. Paper..... 209
 Wettstein, J. C. R. Paper.... 590
 "Why?" W. A. Wiseman, Camargo 587
 Wickstrom, A. M. Discussion 101, 272
 Wilhelmy, A. F. Discussion.. 183
 Wilhelmj, Walter. Paper.... 585
 Wilkin, Carl B. Discussion.. 475
 Williams, Dr. Discussion.... 296 273, 361
 Williams, B. F. Paper..... 434
 Williams, Tom A. Paper.... 303
 Wilson, J. Gordon. Discussion 64
 Wisconsin's Fight Against Degeneracy. F. I. Drake, Wau-pun, Wis. 292
 Wiseman, W. A. Paper..... 587
 Woodruff, Harry. Discussion. 497
 Woodruff, Thomas. Paper... 479
 Worms, Intestinal 537
 Z
 Zellers, Dr. Discussion..... 320

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THE NEEDS AND PURPOSES OF THE STATE MEDICAL SOCIETY.*

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CHICAGO, ILL.

Fellow Officers and Members of the State Medical Society: I desire to thank the secretaries of the various county medical societies for the honor of appearing before you at this annual meeting.

For many years I have taken an active interest in this society. My activity in this direction has brought to my knowledge many of the peculiar complaints of both members and non-members as to what the society should do and what it should not do. Singularly, the most peculiar complaints come from those who are members and who never attend meetings. In my work along organization lines I have always tried to impress upon members this fact—namely, that the only way that errors in the organization can be corrected is through the active participation of members in the meetings and proceedings of the society. To doctors outside the membership I have taken every possible occasion to impress upon individuals that they can not dream of bringing about needed reforms unless they become members, attend meetings and participate in discussions.

In times past it has been the belief of physicians that the only function of the state medical organization is to act as a literary and debating society.

The Needs of the Society.—Changing conditions warrant a careful study of many problems which lie outside of scientific medicine. Medical practice is a business and requires guardian-

ship the same as other interests. The abuses of medical charity by hospitals and dispensaries, medical insurance, lodge practice, the over-trained nurse, the unscrupulous pharmacist, adulterated foods, the underpaid doctor, the cheap doctor, the quack, the patent medicine man, the quack druggist—these are the enemies of the legitimate practitioner.

A feeling exists among a large number of the profession, making itself manifest from time to time, that medicine should be represented more numerically than it is in the legislature. There seems to be an especial attitude of grievance over the much-prated circumstance that lawyers constitute so large a proportion of the personnel of our legislative bodies. Dr. Reed was perhaps the first to start this war cry: "We should have at least as many physicians as lawyers in Congress."

This society should inaugurate a more liberal policy in the treatment of those practitioners of medicine who have hitherto been kept outside the membership because they choose to differ in their manner and method of giving drugs from the so-called predominant school.

Also the barriers of sectionalism should be burned away and those who have been admitted to the practice of medicine in Illinois, as that phrase is defined by the statute, should unite in a common bond for the study of problems of individual and social welfare.

I believe that every county society should publish a monthly bulletin. At present they have very poor facilities for publicity. In this bulletin they could record the hopes, aims and attainments and the views of the county societies. Local bulletins would help to improve the status in the ranks, and by doing so would fill a great field of usefulness that can and should be filled by the county medical societies.

How to give adequate representation in the

*Read at the Secretaries' Conference, Decatur, May 21, 1914.

national society from the smaller legal units—a step in the direction of enlarging the bounds of democracy in medicine—we have yet to solve. And the problem of how to utilize the elective franchise in the constituent societies (county and state) in order to make the house of delegates of the American Medical Association a truly representative body will have to be solved sooner or later.

Successful Management of a Medical Society.

The condition of the body politic is measured by the condition of the various units that constitute it. There cannot be a healthy whole without healthy parts. Success in medical society management is the product of the same two essentials that make for it in the industrial world—namely, ability and “being on the job.” The ability you have. Every officer and, in fact, every member of the Illinois State Medical Society holds an active position. There should be no “dead ones.”

Men soon lose enthusiasm in matters medical if you do not continue to provide them with some tangible work. Give each member something to do all the time.

Each physician has abilities that are peculiar to himself; so has every other physician. That's the fundamental idea of real team work. Use every man's ability to the utmost. Where one man may fail another man may win. “God bless him if he does.” That's the spirit! No jealousies, no bickerings; the good of the profession, first, last, and all the time.

The Secretary the Key to the Situation. A real secretary should be made up of one part talk and nine parts hustle (together with some judgment). He should use the item of judgment to tell when to use the one part talk. Whether this is just the right proportion is not important; it is the principle involved that is vital. It makes apparent the necessity for developing judgment which will regulate the amount of talk necessary, the hustle, of course, being always in order. The society wants not talk but action, and wants that action quickly. There is no excuse for long-winded argument.

Men of Courage Needed. There are days when nature herself does not smile—days when winds blow, rains fall and the sun does not shine. The individual or concern that can do business only in good times is a pretty poor proposition.

Real strength and real ability are demonstrated in times of depression. Faith, ambition and enthusiasm are priceless virtues, but each in itself, or all of them collectively, will not fully serve the purpose. Too often they lead where even angels fear to tread. Much of the mischief that is caused when the industrial sun fails to shine is due to the failure of men to realize that even in the medical profession provision against foul weather is necessary.

Are you satisfied that the offices of your society are manned by men who measure up to standard? Have you as a medical society eliminated lost motion in your organization? If you have not, your society will never get ahead and there is grave danger that some other more progressive county society will outstrip you. No job is such a cinch that new wrinkles can't be found to make its accomplishments more effective.

All of us have a tendency to get into ruts, but most people can be pulled or pushed out; some people can get out alone. If we did not keep an eye on things, we would all be deep down in the mud. An ambition to do something better, or more of it, is the master with the lash that pushes every man on.

Many a race horse would have lost out but for a tap of the whip. He may have, away down in him, the physical ability to put the necessary extra energy into his stride, nose out the other fellows and win the race, or at least get placed; but he needs some sort of sharp sting—and some need more than others—to goad him up to the point of making the final effort.

Two things have grown up together in the medical profession. In their parallel growth they are like twin brothers; in their relation to each other they are like father and son—for one is the author of the other. They are yet very healthy youngsters. They are not eugenic offspring, for a careful examination for the elimination of the unfit would have cut short their career before it commenced. But here they are, with us—procrastination on the one hand and indifference or a certain distrust of our fellow practitioner on the other.

Procrastination, or “let George do it” (if he knows how) disposition has worked havoc with

many in the past. History repeats itself. This is a practical age; a name will not carry you through any crisis today. It is not a period when we live long on reputations. Procrastination is more than the theft of time; it becomes the theft of the treasury, the theft of success. Who has not clung too long to an old idea? It takes a brave man to acknowledge errors; to accept the verdict of progress that his conceptions of a decade ago are but stages in the evolution of man; that they live for a time, play their part and then must take their place in the irrevocable past.

Conservatism is generally commendable, but when cherished too long becomes disastrous. Putting off until tomorrow what we ought to do today is poor policy. It is easy policy, looks valuable at short vision, but is business suicide. Therefore, if you have overlooked some up-to-date feature in the conduct of your county society, bury your pride and get it in, even if a few months late.

Whither Are We Drifting? The socialistic control of all healing is a startling suggestion, but it is being discussed quite seriously in many parts of the world. Some have gone so far as to state that the expense should be borne by the public now. The trend of civilization is unquestionably in the direction of making the healing of the sick a public duty rather than a family affair.

Even the very rich call for nurses who have been trained in semi-public institutions and demand police protection from annoyances preventing recovery. That is, the sick are already dependent upon society for recovery, so at present private practitioners and private hospitals will do well to so order their affairs that the transition to the inevitable public status will be a jarless and quite insensible movement.

Medical economics is becoming a big subject; the county, state and national medical organizations are discussing it and developing plans to better the social, professional and financial status of the doctor.

Medicine as a means of livelihood has arrived at the most critical period of its history. The very existence of the doctor is at stake. Survival of the fittest is the issue of the day. The economic status and outlook for the profession is pitiable. The future, it would seem, is a long

road, full of many pitfalls, with many hard bumps in store for the physician.

In this country the average annual income of the doctor has recently been placed by competent authorities at \$700 a year. These figures are not far from the real amount. Is it not time for the physician to be up and doing?

Economic conditions certainly are not as favorable today as they were twenty years ago. The earnings of a large proportion of doctors are less than that of organized labor. Is it either consistent or proper that highly educated, well trained men who have spent many years at a heavy pecuniary cost acquiring particular knowledge and skill for this, at best, arduous profession, should be forced to subsist on a pittance that a mechanic would reject with scorn?

The cost of living and the necessary professional equipment are too high when compared with the compensation most physicians receive. Society demands from its physicians a certain standard of living, but does not pay them liberally enough to maintain that standard. Is it any wonder that so many of the profession have drifted into various cults and "pathies" where the prospect of a decent remuneration is greater? All this in violation of the principles of the code of ethics held out by the regular schools. It is easy to be ethical if your stomach is fully at peace with the world. In the practice of medicine men do not cease to be human, and in this work, as in every other, the law that declares that self preservation is the first law of nature is frequently a defense for an infraction of the so-called code from economic necessity.

Let us study the signs of the times for the moment. There has been a very marked decrease in the total amount of disease, especially the acute infections. Sanitation and preventive medicine are reducing diseases materially. Hygiene, not medicine, is the slogan of the day. Prophylaxis, not cure, is the watchword. The work of the physician will finally be eliminated by being absorbed as a function of the state. Again, abuse of medical charity, as practiced in our hospitals and dispensaries, is a powerful factor operating to reduce the physician's income. Competition is becoming sharp and the effect of this competition is cutting down the remuneration of medical men. Many new healing sects and irregulars have made great inroads upon

the sum total of patients originally divided among a few schools. Thus, scores of cults are thriving, partly because they offer the sufferer a new hope which the old schools have been unable to supply.

The spread of popularity of quackish medical fads is very prevalent and the tendency to multiply them in the treatment of disease is rampant. Some sixty new cults have arisen in America within the last decade, many of which claim to practice the healing art in some form. Some of them have grown at tremendous speed and at the expense of regular medicine and the health of the people, as, for instance, pseudo Christian Science and allied cults and various "pathies," all rejoicing in more or less recognition from the laity. While many of them appeal chiefly to ignorant credulity, unfortunately the clientele which encourages such impostors is not exclusively composed of silly women and senile men. All of these are contributing factors in providing the deplorable conditions mentioned. This critical condition is not confined to America, but is a burning question everywhere.

Altruism has been overdone in our profession. The awakening of the membership to its perils is apparently at hand. Sporadic efforts have from time to time been made having this awakening in view. Recently the movement has assumed gigantic proportions. For instance, in New York there is the New York Medical Alliance, Physicians Economic League, the Greater New York Medical Societies Economic League, New York City; the Bronx Physicians' League, the Medical Association of Greater New York, the German Medical Society of New York, the Bronx, Harlem, Metropolitan, Lenox and Queens-Nassau County Medical Society, all united in the Greater New York Medical Societies Economic League, all having agreed to make medico-economic agitation either part of their activity or exclusively engage in it.

In Greater New York, as well as outside, the conviction prevails that, with very few exceptions, our old-time medical societies are indifferent or incompetent to promote their economic interests. In other instances, physicians have organized societies or leagues for the express purpose of dealing with the economics of medicine exclusively. For instance, the Brooklyn Physicians' Economic League, the Physicians'

League of Downtown, the Physicians' Protective League of New York, and the Physicians of the Bronx, and which later brought about the Federation of the Medical Societies Economic League.

The Yorkville Medical Society established a committee on economic research, the Out-Patients' Clinics of the City of New York, an association of superintendents and boards of hospital trustees.

The American Society of Medical Economics was designed to take in both North and South America. In the old world there has recently been formed the Deutscher Aertzenvereinsbund, the German Practitioners' Association. In Great Britain the British Medical Association has taken up the subject and the same earnest effort in nearly every country is being made to unite the profession for economic as well as scientific purposes.

In America it is safe to say that three-fourths of the state societies have appointed committees on organization, and that these committees are actively considering the problem of how to bring every physician in the state into the state society or one of its branches.

All this proves that the medical profession is being aroused from its slumber and suicidal indifference to its economic welfare.

From the foregoing it is apparent that the medical profession, like the ordinary wage earner, is sorely experiencing the imperative need of social and industrial justice. In some respects the doctor is far more helpless than the common laborer. While the cost of living is steadily climbing to standards entirely beyond the reach of his ever shrinking income, he is not in the position to promiscuously raise his fees, for were he to do so without the strong backing of a union he would soon be left in the lurch by the majority of his patients, who could readily obtain medical aid from his competitors. Therefore, he has to be content with an average yearly income of \$700 to \$800.

"The laborer is worthy of his hire." If a physician thinks his services are not worth anything he ought not to accept a fee. Gratuitous service should be valued as worthless. A lawyer is never required by the court to work for nothing—many a lawyer is amazed when he learns

that physicians are expected to work gratuitously for hospitals and dispensaries.

A doctor, like every other worker, should be paid by the municipality for every minute he spends on the city's poor. Our charity organization workers are all under salary, and yet calmly ask the doctors to work for nothing. In every other civic matter the trend of thought is in the direction of paying enough to secure efficient service. If all physicians would take more interest in civic matters they would not now be in such a disgraceful situation—serving for nothing while other civic employes are paid liberally.

A corporation must pay all workers, managers and directors; similarly society must pay all workers, managers and directors. The time is coming when most physicians will be under public salary, and the time is already here when they should be paid for public service.

It would go a long way towards remedying medical charity abuse if the rank and file of the profession would refuse to consult with men addicted to and fostering this abuse. The same punishment should be inflicted on those who fail to return to the general practitioner the cases sent to them for advice. Those engaged in contract practice should accept those positions only on condition that lodge members earning more than \$20 a week are to be exempt from participation in free doctor's attendance. Physicians should not be permitted to serve in the same lodge more than two successive years, or to contract with more than three hundred members at a time.

In this way even lodge practice could be made much whiter than it is painted, and as it has apparently come to stay we might as well be resigned to fate and mend what we cannot end.

Discordant Elements Working Within Our Own Ranks. An amendment was recently introduced to House Bill No. 6282 in the National House of Representatives which is intended to take from physicians, dentists and veterinary surgeons the right of dispensing or distributing narcotics, and in lieu thereof giving them the right only to administer them.

This was a very cleverly worded and ingenious attempt on the part of the National Association of Retail Druggists to curtail the rights of physicians.

In California, Kansas, Ohio, Maine and Nevada laws curtailing physicians' rights have al-

ready been enacted. The viciousness of some of this legislation is best illustrated in Nevada, where under the present law a physician, unless he is registered as a pharmacist, cannot administer medicine hypodermically. In some of the proposed legislation veterinary surgeons could not administer needed remedies, neither could dentists administer remedies for the relief of toothache. Self protection is one of the first laws of nature, and if there is to be a fight on this matter, or any other affecting the interests of thousands of Illinois physicians and the people whom they serve, we are ready for it. The sooner the rank and file of the medical profession awaken to the necessity of concentrated action to preserve their rights the better it will be for them.

Greed and money mania are doing their best to prevent unification of the profession, and are the most powerful causes in operation today of division of the medical profession into discordant elements. Attempts to foist on the profession of the United States self appointed bodies of censors is an inspiring example of the present day spirit of lust for gold and power.

The splendid achievement of medicine and surgery in America is positively due to the magnificent system of democracy that has always prevailed, and to destroy this democratic system by a weak imitation of English institutions is to turn the hands of medical progress backward rather than forward.

Such organizations actually negative the work of unification of the profession, so essential for its future preservation, by arousing bitter jealousies and hard feelings among those who are equally entitled to encouragement and honor, by crushing endeavor, blighting of ambition among the younger men of the profession, by setting arbitrary caste limitations upon the field of effort and achievement. You cannot bring about the love of mankind by a writ of habeas corpus, nor can true dividends of life be secured by issuing a mandamus. Repression feeds on repression, tyranny upon tyranny. The real truth can be shown when we rise above the plane of egoism to altruism.

The great men of the world have not been those whose field of activity has been restricted. The men who have achieved great things in this world have been those of strong character, and

character is not built by narrowness, but by breadth.

If we are to exist as an organization there must be no star chamber work, no exemption from the common test and no compromises. Otherwise, we build on a foundation of sand, and from such a foundation has arisen all our dissatisfaction with that nondescript superstructure known as "Medical Legislation."

What I have to ask myself as I face the possible future of the profession is this: Do the individual members see distinctly what it is that they have to fight, and have they made up their minds that they are going to fight it to the finish? For my own part it is perfectly evident that there is a fight before us. I am not one of those who believe that those who are seeking secret powers in the profession are going to give up without a fight. There is an old rhyme which aims to cheer the world by assuring it:

"Truth crushed to earth will rise again,

The eternal years of God are hers;

But error, wounded, writhes in pain

And dies amid his worshippers."

It is very pretty, but it is barely half true. Truth crushed to earth will rise again—and so will error. On many occasions error has been known to make the faster recovery. Human error is a stubborn, persistent, enduring thing, and no form of error is so hard to kill as that which embodies aristocratic privileges.

"I freely admit, however, that the blindness of bigotry, lack of generosity, lack of everything that characterizes a Christian spirit, has been and is now of great assistance to a privileged class in keeping us apart. But my voice, small as it is; my vote, insignificant as it is; my influence, weak as it is—these are pledged to promote the unification of our profession, which may easily be accomplished by a little forgetting and forgiving on both sides, and by an honest purpose on both sides to give play to the proposition that 'charity suffereth long and is kind.'"

"Then let us pray that come it may,

As come it will for a' that,

That sense and worth o'er a' the earth

May bear the gree and a' that;

For a' that, and a' that,

It's coming yet, for a' that;

That man to man, the world o'er,

Shall brithers be for a' that."

From the foregoing it is self-evident that the first need of the profession is organization. During the past decade great efforts have been made to perfect a working organization. A survey of the present situation reveals the fact that these efforts have been eminently successful. In 1896, of the 102 counties in the state, only 33 had county organizations; 69 had no county medical organization; only 11 per cent of the profession in Illinois belonged to the state organization. At the present time all counties are organized and approximately 65 per cent. hold membership in the organization. There are still many physicians not members of the County and State Society, but the progress along organization lines has been remarkable. Through this medium the membership is becoming better acquainted—this always leads to more efficient co-operation.

Accomplishments of Organization. The rapid changes in the science and art of practice; the unlearning of supposed truths; the transitions from old to new conceptions. The old doctor brings to the society his mature experience, the young doctor his theory—they swap, each profiting by the deal.

Promotes Social Interchange. During their busy hours doctors have no time or opportunity to meet in a social way; such opportunity is provided by the County Medical Society.

The Second Need of the Profession Is Co-operation. The spirit of co-operation is being manifested in every walk of life. Medicine should not lag behind in her preparations to meet new conditions. Great medical problems confront the profession; they cannot be solved by individuals, they must be solved by united effort. The demands of modern medical practice make close co-operation a necessity. It is the only hope for the future in medicine.

The man who tries to practice medicine alone is making a great mistake. The field is so large and the interests involved are so varied and so many that no man can keep in touch with them all without constant help from his fellows. A few instances of what can be accomplished by co-operation:

First: Men can co-operate in raising the level of the professional status in the community.

Second: In encouraging helpful consultations.

Third: In raising fees and insisting on a fair remuneration for medical services.

Fourth: In stamping out criminal operations in their community.

Fifth: In securing helpful medical legislation.

Probably at no time have the activities and efforts of physicians been as freely and widely discussed as at present. It is a warning to the profession that our activities and motives in the future will be subject to much more rigid scrutiny than in the past. As the social activities of the profession increase, the need of correcting our professional ideas in the light of criticisms from a popular viewpoint will become more apparent.

In this day of free intercourse between nations and the intimacy established as a result of commerce, science and travel, no country can afford to keep to itself or remain indifferent to the welfare of its neighbors, any more than a person can disregard his social duties or remain indifferent to the welfare of its neighbors.

Sixty years ago Japan was as remote from us as Mars is today. Telegraphs, steamships, newspapers, in less than a century, have remade mankind. National boundaries have become like "Mercator's torrid zones and equators—merely conventional signs." Class interests, commercial interests, human sympathies, customs, modes of thought, flow across them freely.

City visits city, state visits state, untold millions of dollars are spent every year on pilgrimages of good will. Beyond doubt the most active and most powerful force at work among men today is the enlightened unselfishness which labors for universal unity in doing good.

We know that society flourishes by the mutual aid of human beings and that antagonism of the atoms would mean defeat and failure; that in all military or commercial enterprises individualism has to be subordinated to collective action. We do not believe that a house divided against itself will stand. We believe that it will fall. We know that a state divided by internal feuds and torn by factional fighting cannot hold its own against a united people.

We know that a society composed of antagonistic atoms cannot exist as a society. We know that if men are to be found to create and govern system and policies they must work together and not against one another. These things are as

obvious as the fact that there could be no hive unless the bees worked as a colony and on the lines of mutual aid.

Let us then at the earliest possible moment arouse ourselves to a hasty and unselfish co-operation to combat the numerous forces that seek to engulf us. It is vain for a few to take a stand against encroachment of private patients and public bodies, if within our own profession are to be found those who are willing to accept what others, with the true interest of the profession at heart, indignantly reject. And it is against human nature to expect that men should present a bold front to the common foe if they are morally certain that they would be stabbed in the back by the fellow within their own rank.

Let us then get together to make the most of ourselves and to help others to make the most of themselves; to recognize that we are not getting our best unless all our neighbors are getting their best; to create the institutions which will make it possible for all the profession to lead this life together—this is democracy and Christianity. Surely there are times when we must criticize and occasionally we must reprimand, but if we forget that "pat on the back" our admonitions will soon become useless and conditions made worse rather than better. Give a little thought to this neglected asset—appreciation—then do a little patting on the back.

"It may be that you cannot stay

To lend a friendly hand to him

Who stumbles on the slippery way,

Pressed by conditions hard and grim;

It may be that you dare not heed

His call for help, because you lack

The strength to lift him—but, you need

Not push him back."

SIMPLE GOITER A COMPENSATORY HYPERTROPHY; ITS SYMPTOMS AND RELATION TO OTHER CLINICAL TYPES.*

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CHICAGO.

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One of the most difficult questions medical men have been called upon to solve is that of goiter. The frequency with which papers have been read on the subject before this society is an expres-

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sion of its intention to do its part in the solution of the problem. We have been confronted with an organ whose functional activity could be but partly investigated and whose histopathology so frequently appeared similar in patients showing different local and constitutional symptoms, while on other occasions, patients showing the same symptoms exhibited different histopathology; but the most confusing feature of all was the complex histopathology so often found in the same gland. Upon more careful study hyperthyroidism has been found to be associated with definite local changes in the thyroid gland.



Fig. 1. A typical adolescent goitre. We note bright, glassy or watery eyes, harsh hair, soft skin, flurid cheek, soft muscles and easy fatigue among this class of patients.

No matter what complex features may present themselves in microscopic sections from this group of cases careful search will reveal glandular hyperplasia in some part of the gland.

There remains a great group of goiterous patients for us to study, of all ages, presenting various local and constitutional symptoms. As a rule, these have been classified as adolescent, simple goiter or struma and no attention given to certain constitutional symptoms usually present; little encouragement could be given as to the certainty of recovery. Some of these patients

exhibit toxic symptoms not very unlike those of hyperthyroidism and have often been treated as such; but more recently we have begun to classify simple goiters clinically, as toxic and atoxic, neither of which show glandular hyperplasia.

After being confused by so many contradictory clinical and pathological findings, I began to study each of my goiter patients with more care than I had been accustomed to doing and now believe that all goiters not associated with neoplasms have their beginnings as compensatory hypertrophies; that the varying local appearance depends on existing pathology; that both gross and microscopic appearance of the gland depend upon the stage and character of pathogenesis and not upon the duration of the disease; that constitutional symptoms appear in proportion to the need of thyroid secretion; that most simple goiters are reasonably curable by use of thyroid feeding, and that glandular hyperplasia may be engrafted upon a goiter in any stage of development when suddenly or over a long period of time, through hypertrophy, the gland fails to supply the demand. This increases the secreting area and I assume that there is usually an automatic adjustment, but when there is not, I assume that glandular hyperplasia continues and is always accompanied by symptoms of hyperthyroidism. This idea is supported by the experiments of Marine and Halsted, who found that upon partly dethyroidizing dogs, glandular hyperplasia in the remainder of the gland promptly followed.

An experience of Wm. E. Morgan is valuable in this connection. He saw a patient in a state of advanced myxedema. On feeding thyroid extract the symptoms of myxedema rapidly disappeared and the thyroid diminished in size. Upon going to Boston thyroid feeding was suddenly discontinued, the thyroid gland took on rapid growth and became much larger than ever, and the symptoms of hyperthyroidism were so pronounced that Goodall had a thyroidectomy done with immediate improvement. Sections showed epithelial hyperplasia. This tends to establish the theory of compensatory hypertrophy in cases of thyroid deficiency, the certainty of improvement upon thyroid feeding, the probable rapidity of onset of hyperthyroidism upon sudden withdrawal of thyroid and to further link this symptom complex with a definite pathology.

My observations of simple goiters, struma or hypertrophy of the thyroid, as I believe the condition primarily to be, have led me to describe a group of symptoms associated with this affection which are commonly overlooked but which do appear with as much uniformity as do the symptoms of hyperthyroidism.

The condition may be present at birth or may appear at any age thereafter. Females are more commonly affected.

Locally, the symptoms are so obvious that I need only mention that the enlargement of the gland may be local or diffused. Diffuse processes may affect one or both lobes. One lobe is usually larger than the other when both are affected. The shape and size of the tumor has no relation to the severity of the symptoms of hypothyroidism. Nodularity of the mass depends on the stage and character of pathogenesis and not upon the duration of the disease and is due to the presence of localized cellular swellings, colloid accumulations, adenomatous or fibrous changes. Parenchymal and colloid processes are especially likely to be diffused. In the latter, individual masses often stand out more prominently than the remainder of the tumor and may cause great disfigurement or mechanic disturbances. Nodular adenomata are single or multiple and while usually hard may show more or less marked fluctuation due to the presence of fluid within, the result of central degeneration. Parenchymal changes resulting in fibrosis often show bands of contraction which produce nodulation. This condition often accounts for myxedema following hyperthyroidism with or without operation.

The *constitutional symptoms* are most worthy of consideration. The child or adolescent may appear active and apparently robust or plainly below the standard of health and development. Among the younger children I usually observe a weak voice, frail stature, muddy and pimpled skin, poor muscular tone and a drooping posture, but among the adolescents usually a clear skin with flushed cheeks. In both there is easy fatigue, resulting in indoor life, often lack of ambition; rapid but regular pulse varying from 70 to 120; soft muscles, a slouchy tendency in many and a difficulty to arouse enthusiasm. In most patients there is clearly poor vaso-motor tone evidenced by low blood pressure, flushed

cheek in the adolescents, moist skin and cold or congested hands and feet. The eyes of children and adolescents are often exceptionally bright and give a glassy or watery appearance. Some of these show puffy eyes, I think, bearing direct relation to the degree of hypothyroidism. These bright eyes are often mistaken for early manifestations of hyperthyroidism, but tests for exophthalmia are always negative. Patients of any age with long-standing goiter almost invariably show a careworn expression, signs of malnutrition, greasy skin, oily and thin hair, which is



Fig. 2 (a, b, c and d). Note dates. Emaciation, careworn expression. Nutritional changes in child with goitre under thyroid feeding.

unduly harsh, a careless posture, carelessness in dress and evidences of always feeling tired. Much of the clinical picture is due to general muscular atony, for example, the heart and blood-vessels share in this muscular atony and in consequence we find the rapid pulse and evidence of poor vaso-motor tone. The pulse rate therefore will depend upon the amount of muscular atony which will in turn be dependent upon the need for thyroid secretion, and this will bear direct

relation to the amount of remaining secreting tissue and the quality and quantity of its product. The hemoglobin has been rarely very low in cases seen by me, in fact, the reading is usually between 78 and 90 per cent. and in two marked cases, 100 per cent. plus. The disease therefore bears no relation to chlorosis which in the past it has been so frequently thought to be the result of. A coarse muscular tremor may be present but is not likely to be rhythmic as is the case in hyperthyroidism but jerky as in chorea and is noticeable only in the hands. Pronounced albuminuria associated with hyalin or granular casts or both is a striking feature seen in some of the graver cases. Albuminuria and casts not accounted for by previous history or physical findings and not associated with high blood pressure, and their rapid disappearance upon the administration of thyroid extract suggests that this is not a true



Fig. 3 (a). Front view before thyroid feeding. Note large nodule in left lobe and general enlargement of right lobe.

(c). Same one month later. Nodule not very apparent. Change in expression, skin, hair and does not tire so easily.

nephritis, but a functional disturbance in the kidneys due to circulatory difficulties, the result of poor vaso-constrictor influence and consequent low blood pressure. It should be differentiated from true nephritis.

It must be understood that any one or more of these symptoms may be absent just as in cases of hyperthyroidism and that the degree of mildness or accentuation of each depends upon the degree of need of thyroid secretion.

The diagnosis of thyroid hypertrophy with hypothyroidism is difficult only in rare instances. These are patients who usually show the bright

eye, the vaso-motor disturbance, slight tremor, rapid pulse, great exhaustion, signs of malnutrition and often give a history of long standing goiter with a slow onset of the toxic symptoms and are mistaken for cases of hyperthyroidism. This clinical picture of toxic simple goiter is supposed to be caused by a more or less sudden resorption of products from the thyroid gland which have been stored there. I do not agree with this theory but believe the entire picture is caused by deficient or perverted thyroid secretion, because many patients so rapidly improve upon the proper administration of thyroid. It is also said that this condition cannot be differentiated from hyperthyroidism but I believe it can, and with relative ease. The eyes do not answer the tests for exophthalmia. Puffiness about the eyes, if present, is not often accompanied by its usual causes. There is rarely if ever cardiac irregularity; if present, organic heart lesions and digestive disturbances should be ruled out; the heart beat is not likely to be tumultuous. Tremor is coarse and not constant, and so far as my experience goes, is never so generalized as in exophthalmic goiter. The patients with hyperthyroidism who have psychic disturbances usually show confusion or exhilaration while those suffering from hypothyroidism are more likely to show mental apathy. Thyroid extract will accentuate the symptoms of hyperthyroidism, while it may ameliorate the symptoms due to hypothyroidism if properly administered.

A certain group of patients suffering from very moderate hypothyroidism, usually having small goiters show very high nerve tension; sit staring and ready to jump; are neurotics and would exhibit mild tremor and rapid pulse though no goiter were present. These are commonly taken for the exophthalmic type.

The *treatment* consists of supplying the need of the patient with substances apparently supplied by the thyroid gland. Iodine has stood pre-eminent among the remedies for simple goiter but in my hands has not proven as useful as it has in the hands of many others. It is found in the thyroid gland but is combined with the proteins of it, forming a complex chemical substance. From my experience I infer that thyroiodine is the substance required and not iodine alone. There is no specific dose of thyroid. I

have proceeded in each case to give at first $\frac{1}{2}$ to 3 grains of the desiccated extract every 12 hours, depending upon my estimate of the need of the individual. Patients in a more advanced *state of hypothyroidism* seem to tolerate the drug at first better than others. I see the patients daily at first with a view of testing their tolerance. After a few days the dose is taken each six hours during the day only. Of late after I have gauged the patient's tolerance I have given small doses varying from $\frac{1}{8}$ to 1 gr. every 1 to $2\frac{1}{2}$ hours during the day with a view of more nearly imitating the supposed action of the gland and I now believe patients tolerate the drug a little bet-

in the size of the goiter. Insomnia is sometimes troublesome when the dose is being pushed. After the first few days of forced treatment I find that it is usually very easy to produce signs of hyperthyroidism with much smaller doses, but after a time the patient suddenly becomes more tolerant to large doses. I have used the Armour preparation for no other reason than that it is the pure desiccated gland and is standardized by a reliable chemist, Mr. Fenger.

In the severer cases early withdrawal of the thyroid has been accompanied by return of the symptoms and resumption of former size of the goiter. Continued treatment in the severer cases



Fig. 4 (a, b and c).

Miss S. referred by Dr. I. Kerlin, age 26; goitre 10 years; pulse 100, regular; no tachycardia, tremor or exophthalmia. Losing weight, goitre chokes and suffocates her at times; temporal and occipital headaches two or three times weekly; skin greasy and pimpled;

hair oily, stringy and harsh; muscles flabby, except in arms; cheeks flushed. Side view, same as Fig. 3. Note dates on photographs, prompt change in size of thyroid and in general appearance of patient on thyroid feeding. Improved, not cured; still under treatment.

ter when thus given and improve more rapidly. Patients take large doses best at first but in a few days show signs of hyperthyroidism. Advantage may be taken of this and the most marked results obtained in a short time by this method of administration. The dose is stopped or diminished whenever hyperthyroidism is induced. I endeavor to feed the patient just enough desiccated thyroid to fall short of inducing symptoms, but I cannot always do this and at the same time obtain nutritional improvement and diminution

has caused a rapid improvement in the first few days and very slow but steady improvement thereafter. Milder cases who complain only of their goiter often exhibit immediate diminution in circumference of the neck and better muscle tone as evidenced by their gait and poise and patients often remark upon their improvement in endurance. The pulse rate frequently drops with astonishing promptness but there is no uniformity in this. As the thyroid feeding is increased the pulse rate ascends. The dosage should be gauged

by the increased pulse rate, induced tremor and the composed or anxious appearance of the patient. There is not the change expected in blood pressure; sometimes early readings show one to five points above that when first examined; sometimes one to three points below it. Among those whose nourishment has suffered, improvement is often rapid and striking.

There is one group of patients with whom results are neither prompt nor satisfactory as yet. These are patients who have had symptoms of

Further observation may lead to better explanation and therapy of this group.

Without measurements and photographs there is nothing with which to compare results. They are especially desirable in large thyroids which take a long time to dissipate. If the eye alone is trusted discouragement and uncertainty results.

Improvement is estimated through gain in strength and endurance, diminution in the pulse rate and improved expression rather than through the diminished size of the goiter.



Fig. 5 (a, b and c).

C. O., referred by Dr. John O'Neil, aged 15; malnourished, face sunken above and below zygoma; weight 87 lbs.; pulse 85, regular; blood pressure 110; Hgb. 92%; urine loaded with albumin, hyaline and granular casts; right heart dilated; rough systolic murmur over apex; no tachycardia, but heart flutters when he runs upstairs; no tremor; no exophthalmia; goitre four years, troubling him first eight months ago, growing slowly worse. Right lobe very large; inside of collar measures $16\frac{1}{2}$ inches and is very tight when buttoned. His stertorous breathing heard all over ward and he lies in bed propped up to make breathing easier. Thyroid Ext. gr. xv about every five hours in day only. In hospital seven days before

treatment was begun. Thirty-six hours after treatment stridor present, at end 48 hrs. it had disappeared.

Fig. 5b shows appearance of goitre and expression after thyroid had been taken a few weeks. Note dates on photographs. Rapid improvement in breathing, nutrition and diminution in size of goitre. No other medication. In about two weeks after starting treatment, laboratory reports no albumin and no casts in urine. Sept. 10, 1913. Weight 106; height in May, 1912, was 5 ft. $1\frac{1}{2}$ in.; today his height is 5 ft. 7 in. Base of neck 16 in., which is $1\frac{1}{2}$ in. less than when he weighed 87 lbs. Pulse 85; heart not reported on; blood pressure 127; urine negative. Note athletic appearance in photo 5c.

hypothyroidism with hypertrophy of the gland, who often show puffy eyes and face, a tremor and rapid but regular pulse. These, I think, are patients in whom compensation has failed and as a consequence glandular hyperplasia has begun and while signs of hypothyroidism still exist, there is also a suggestion of beginning hyperthyroidism. I think these are often unrecognized as such and spoken of as cases of simple toxic goiter.

Failures will be numerous when the patients are not seen often by the physician who is to see that the patient gets enough thyroid, and protect him against the damaging influences of continued overdosage of it. Intermittent, careless use of the drug is useless and dangerous.

I have had no beneficial results in cases of encapsulated, benign neoplasms and no experience in giant goiters of any kind.

I do not think that true hyperthyroidism is induced through giving of the extract. This is one of our mistaken conclusions. The symptoms may be induced and the heart and nervous system may be damaged by continued overuse of thyroid feeding, but since true hyperthyroidism is apparently due to or associated with glandular hyperplasia, I cannot conceive of this process being induced by the feeding of thyroid; but I would advise against its frequent or sudden withdrawal because the gland is not prepared to suddenly compensate and may promptly take on glandular hyperplasia as in Morgan's case.

It is too early for me to state dogmatically to what extent patients are permanently cured of



Fig. 6. Encapsulated adenomata, none of which I have benefited by thyroid feeding. In appearance, outline and consistency these often simulate simple goitre, especially if single, and if they occupy a major portion of the lobe.

their thyroid enlargements and other signs of hypothyroidism. It is probable that children and adolescents are helped over certain periods of development during which the gland is incompetent and after which it becomes competent. It is also possible that certain patients suffering from pressure on the secreting substance due to included colloid masses, have their glands become competent and remain so when these masses disappear under thyroid feeding. Other patients will have had so much damage to the secreting structure that they will always require thyroid feeding to prevent the return of the goiter and

other signs of hypothyroidism. The goiter entirely disappears in some of the milder cases, especially in adolescents, but those with large or small goiters of long standing and advanced pathologic changes, will usually continue to show some enlargement.

I attempt to account for diminution in size through diminished swelling of the cellular elements in mild cases and through splitting up and rendering absorbable extravasated materials where advanced colloid changes have occurred.

Most of our cases show great improvement, reaching nearer 95 than 50 per cent. With such an experience as this patients should usually be given the benefit of this treatment before operating for goiters which are not associated with hyperthyroidism or neoplasms. When operations are done for cysts, adenomas and colloid collections, for cosmetic or mechanical difficulties, care should be taken to remove as little secreting gland tissue as possible.

If the foregoing has explained any of the perplexities concerning symptomatology and rendered diagnosis easier, I am confident that some of the popular perplexities concerning the pathology will also be soon explained and a more definite relationship between pathology and symptoms will be shown.

I am confident that these ideas are properly directed but will need alterations as we learn more about the subject.

DISCUSSION.

Dr. Robert McGregor, Saginaw, Mich.: In an experience of twenty years in the home treatment of the insane I have found no procedure so valuable as hydrotherapy. I have found it most useful in exhaustion cases, as well as in cases of depression. I do not think that there is any other agent which will so conserve the energies of the patient and at the same time produce a fair degree of composure in cases which resist other treatment.

Dr. Ross Moore, Los Angeles, Cal.: Possibly my mind did not work rapidly enough in listening to the statistics, but I would like to ask Dr. Dollear if he can sum up in a few words for me this question: Do you get the best results in sedation or in stimulation? I mean by that, in the classes of cases that he was handling, in the aggregate, does he think that he cured more cases or relieved more cases of active types of trouble than he did of those slow types which might be given the stimulative treatment?

Dr. Dollear: I think that more real good has come of the sedative treatment than of the stimulative. Probably in no case was one type of treatment used exclusively, but rather an effort was made to get at

the individual reaction of the patient and try to give him that particular measure which for the time-being would seem most satisfactory.

Dr. Dollear: I wish to limit the term recovery to an economic and social recovery, just as I had it in my paper. The recovery seemed to be rather high, especially in the dementia praecox group, but those people are no longer a charge upon the state; they have been for more than two years away from the institution, and have not entered any other institution, and the reports from them are that they are carrying on their work.

As to the haphazard employment of hydrotherapy, I may say that early in this work results were by no means what the present reports would indicate. It was not until after a trained individual came in and taught our people how to give hydrotherapy that we began to get satisfactory results. In our earlier cases we attempted to follow the methods by rule and used warm applications for sedative treatment. We used cold applications for the supportive or stimulative treatment, and we used either, of course, for elimination, but later on it was found that we got better results from the cold applications carried to a period of elimination—of course, for the sedative effects. Our result with the application of the hot treatment was always unsatisfactory; the patient, instead of reacting equally throughout the body, showed a mottled skin and an unequal reaction.

I think probably in the sedative pack one of the most important things is the smooth and even application of the surrounding fabric.

Dr. Archibald Church: It is a privilege to have heard such a paper. It is a physiological axiom that an organ may vary in a morbid fashion in three different ways. There may be diminution of secretion, an excess, or a perversion of secretion. This, in a certain sense, covers the entire range of thyroidal disorders. We find cases from the complete athyroidal condition, marked by advanced and strongly pronounced myxedema, through slight gradations up the scale, to normal health, and through normal health up to the most advanced Basedowic picture.

The slightly marked cases, the *formes frustes*, which were first called to particular attention by the French writers, I still feel are rather common and often escape intelligent professional investigation. I call to mind the case of a vice-president of one of our trunk railroads, who for many years went the rounds and received tonics, iron preparations, massage and hydrotherapy, combined with outdoor exercise, and all that he complained of was weakness and a feeling that he was not able to keep up with his work. He presented a peculiar pallor, such as we see in Bright's. His skin was extremely transparent, and he impressed one as being very anemic. Blood examination showed no anemia, and urinalysis showed no kidney lesion. After many years, passing through my hands four or five times at different intervals, he ran into somebody in New Jersey, a young man in country practice, who suggested that maybe he did not have enough thyroid. On his return to New York he saw a prominent in-

ternist, who gave him thyroids. For five years now he has considered himself in perfect health, and is taking a pinch of thyroid each day.

Patients presenting the question of thyroid seem by the profession to be roughly classed into myxedema cases, if young with or without goiter, and cases of hyperthyroidism or Graves' disease, if adults. In the cases of Graves' disease the use of thyroids is not employed by the general practitioner, or anybody practically.

Cases of simple goiter, of which I see only a moderate number, are not, as a rule, treated with thyroid administration, yet it is a fact, which has been so beautifully brought out here tonight, that a large thyroid, that is, a goiter, may be associated with a diminished thyroid action, an athyroidism, and by the administration of thyroid extract the goiter can be removed and the hypothyroidism cured. That is a fact which is not of general acceptance even, but it is a fact of importance.

There is another question that comes in which leads to difficulty, in that the thyroid is associated with other glands of internal secretion. We may not forget its association with pituitary, pineal, thymus, adrenal and genital glands. I have seen, and every practitioner has seen, a large number of cases of goitrous adolescents—particularly girls—that, whether they received iodine externally or iodide internally, or both or nothing at all, after a while lost their goiters. This is a developmental matter. It is not essentially pathological, and does not call usually for very much treatment. But even in the goiter of adolescence careful search of the patients will show dysthyroidal symptoms.

Dr. Wm. M. Thompson: I wish to thank the essayist for his able presentation, and to also commend him and the previous speaker for the warning note in regard to surgical interference in these cases. I have been considerably interested in thyroids, and particularly in the relationship of the thyroid to the sexual organs. I would like to emphasize also the remarks of Dr. Church in regard to the relationship of the thyroid to the pituitary gland and adrenal gland, as well. It seems to me that in many of these cases of so-called chlorosis, where the patient presents the picture of the chlorotic and yet has a normal hemoglobin, that the thyroid is at fault, and the reason is this:

The development of the sexual organs certainly calls strongly on the thyroid, and as a result the thyroid hypertrophies in many cases. In other cases it does not accede to the demand, and as a result we have this hypothyroidism. A great many cases have presented, in my experience, a typical picture and history of chlorosis, in which I felt sure that puberty was making demands that the thyroid gland was incapable of fulfilling. And, further, where the thyroid did hypertrophy and increase, sometimes this excessive development extended over a period of time following the development of puberty, in which then we had hyperthyroidism, which continued.

In regard to the use of iodine. Marine has done some remarkable things on the thyroid in fishes.

Marine made this experiment: He went to one fish hatchery where there was an endemic condition of hypertrophied thyroid, which was thought to be cancer. After considerable study he decided it was not cancer, but was due to the environment of the fish, that they were too closely crowded in ponds and pools, and that the food was not properly prepared. Therefore, he changed the distribution of the fish in the pools, placed them differently, and fed them differently. He introduced into the water a very small quantity of iodine, and noticed an improvement, and in most cases a cure. There is a further condition of enlargement of the thyroid that has interested me, and that is the thyroid of pregnancy. It is noticed particularly during the first four months—up to the fourth month of pregnancy. After that it begins to subside, or is at a standstill until after delivery. Then I have noticed (particularly in some animal work) that the thyroid during lactation also hypertrophies. We have made some sixteen or twenty experiments on pregnant dogs, in order to study this question, and we have found that dogs do well after both thyroids are removed by feeding thyroid; that is, they live for a while and do not show the signs of tetany. After the birth of the puppies, though, the milk glands cease to secrete, and then the mother and the puppies succumb to tetany.

Dr. I. J. K. Golden: I have had altogether about five cases, and in each instance all the symptoms of exophthalmic goiter return if the suprarenal gland is for a time withheld, but as long as the administration of suprarenal gland is kept up, the symptoms disappear, and the gland returns to almost its normal size.

I have patients under my care now who habitually come from a prescription because they want these capsules refilled. The symptoms disappear in about two weeks, while taking the desiccated suprarenal glands.

Dr. E. M. Brown: In my opinion there are very few goiters in adolescence that require much treatment. Many of these cases, as Crile, I think, stated, will get well on ten or more drops of iodide of iron two or three times a day, at different periods in the year, and most of them will get well if you do not do anything at all.

We recognize the fact that there is a close connection evidently between the thyroid gland and the sexual system. That is not only shown in the facts that the previous speaker referred to in the lower animals, but also anatomically in invertelbrates, crabs, etc., in that the secretion of the gland in these discharges into a duct in connection with the genital tract. This relation is shown in the human being in different periods of life—adolescence, menstruation, pregnancy, and so forth. This is physiologic and seldom requires treatment.

Hyperthyroidism occurring in cases of simple or adenomatous goiter is explained when we examine

microscopically the benign growths. The typical condition of the epithelial proliferation is often found in the area surrounding these growths, perhaps brought about by the irritation of the growth, or perhaps by some other means.

Dr. Joseph L. Miller: The facts presented by Dr. Buford, it seems to me, are so conclusive that we cannot help but believe that the theories which he has put forth to explain them must be, at least in part, true. We have classified these disturbances of the thyroid into the two extreme groups, myxedema on the one hand, and hyperthyroidism on the other. It has been my belief that the atypical cases which we have seen have been on the side of hyperthyroidism. This includes a great group of patients who were exceedingly nervous, with slight tremor tachycardia. Until Dr. Buford called my attention to these points I have not considered that there were many cases, except the typical myxedemas, who were suffering from hypothyroidism.

While a good deal of work has been done upon the physiological action of the secretions of various ductless glands, we are in almost complete ignorance of the rôle played by these upon the organism, or the interrelation that exists between the various glands. We do know that, taking out the part of the thyroid in an animal is followed by hypoplasia of the remaining portion unless the animal receives iodine or iodides.

I wish to recite one experience I had—although one case does not prove much. The results were so striking that it left considerable impression on me. It was exactly of the same character as the case reported by Dr. Buford of Dr. Morgan's.

The patient was a girl, with a simple goiter, who received small amounts of iodides, which was kept up for several months. The goiter not having undergone any change, the girl stopped the iodide and returned in three or four weeks with the most striking symptoms of hyperthyroidism—tremor, loss of twelve or fifteen pounds in weight, and very marked tachycardia. Feeling that possibly after stopping the iodide the thyroid had undergone a hypoplasia, the patient was again put upon the iodide, and in three or four weeks' time the symptoms had disappeared.

It has always seemed to me that surgical procedure in hyperthyroidism does not get at the root of the matter—that is, until we know what really causes this hypersecretion of the thyroid we will not be able to treat the disease in a perfectly rational manner. I believe very few of these patients who have operations could really be considered complete cures, although so reported by the surgeons. I think the vast majority still give some evidence of hyper- or hypothyroidism. This, to my mind, is not surprising. I think it would be very surprising indeed if any surgeon could remove exactly the right amount of thyroid gland.

Dr. Buford (closing the discussion): In reference to the idea just advanced by Dr. Brown who states that Dr. Crile believes that most of these adolescent goiters will get well without treatment, I wish to say that depends altogether on what locality the patient

lives in. Unquestionably, this hypertrophy is brought about by some food or water content, or lack of content, and there are some patients who are not going to get well in a locality where this prevails, while in non-goiterous districts it would be easy to cure them with almost anything. Only a little while back I was impressed with the idea that we could so easily miseducate men in other communities by laying down dogmatism applicable to our community. One surgeon in Philadelphia said "It is strange that the Chicago men see so many goiters. I have rarely seen an exophthalmic goiter operated on in Philadelphia because we don't have them, we are not in a goiterous district."

In reference to the suprarenal extract, I think that is an interesting observation, and I thank the doctor for bringing out his experience in that connection.

Dr. Church's observation with reference to a little pinch of thyroid now and then is a splendid practical suggestion and I am glad to hear him confirm what I have said. Many patients with thyroids of moderate size, who have not felt well for years, will begin to tone right up and express themselves in four or five days, or a week, as feeling better than in years after thyroid feeding is begun.

My idea of simple goiter being a compensatory hypertrophy is further borne out by the fact that most myxedematous patients have goiter. In these, it must be a compensatory enlargement of the thyroid. Ninety per cent of cretins, who have practically no secreting tissue, have goiters.

RHEUMATISM IN CHILDREN.*

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Rheumatism is one of the diseases that reminds us, ever and again, as we have need to be reminded, that the child is not simply a miniature man, but that he has a physiology, a pathology and a therapy quite his own. To one who thinks of rheumatism as it manifests itself in the adult as essentially a very painful and very evident polyarthritis, accompanied by high fever, profuse acid sweats, and a certain tendency to heart involvement, rheumatism in childhood will seem a rather infrequent and more or less negligible condition. As a matter of fact, rheumatism occurs not only fully as frequently in the child as in the adult, but it assumes here a gravity as one of the serious diseases of childhood that it quite lacks in the adult. It is largely from a study of the disease as it manifests itself in the child that our conception of rheumatism

as an arthritis has widened so as to include among its manifestations a variety of conditions, notably chorea, endocarditis, tonsillitis, rheumatic nodules, etc., that were formerly considered as unrelated or as complications, not as a part of the disease itself. It is not surprising, then, that many of the most valuable contributions that have been made to this conception of the disease have come from pediatricians, especially from the English clinicians, Cheadle, Barlow, Poynton, Still, Thompson and others. In spite of this we are still too prone to think of rheumatism as a more or less local joint disease, and I think no apology is necessary for speaking particularly of rheumatism in children, for it is here that joint symptoms sink to a minimum and other more serious symptoms attain their greatest importance. I shall confine my remarks strictly to a consideration of the disease as it occurs in the child as compared with the conventional conception of it derived from its manifestations in the adult.

Like many other infections, rheumatism has a peculiar age selection. It is still a question whether it ever occurs in the first year, is almost unheard of in the second year, and is very rare in the third year. After this it becomes increasingly more frequent until the age of ten or twelve years, when it is probably more common than at any other age. During adolescence and early adult life it remains nearly the same, and then gradually recedes. How frequent it is in childhood can be seen from the statement of Still that more than one-fourth of all the patients in the Great Ormond Street Hospital, London, between the ages of six and twelve, are there because they have rheumatism; and more than 13 per cent. of all the children between six and ten in the out-patient department of the King's College Hospital, London, attend for the same reason. While rheumatism certainly seems more frequent in London than with us, nevertheless these statistics will not seem improbable to one who is familiar with the conditions in our large charity hospitals and dispensaries that draw on that stratum of society in which rheumatism is especially prevalent and destructive.

Rheumatism in the child differs from that of the adult mainly in the following particulars:

*Read before the South Side Branch, Chicago Medical Society, October 14, 1913.

1. The relative non-importance of joint symptoms.
2. The greater frequency and seriousness of cardiae rheumatism.
3. The occurrence of chorea.
4. The presence of the rheumatic nodule.

The relatively slight involvement of the joints needs especial emphasis. It is this that has led to the common idea that rheumatism is infrequent in children. The classical painful polyarthritides of the adult is rare before the tenth or twelfth year. At any time in early childhood the joint symptoms of a true rheumatism may be wholly absent or so slight that they escape attention or are recognized only in retrospect as other symptoms, a chorea, or an endocarditis, reveal the real nature of the disease. The pains are, furthermore, not always referred to the joints themselves, but to other portions of the trunk, arms or legs, such as the thigh or the calf. Commonly these pains are called "growing pains" in the older child, even though the child may at times cry with pain. Occasionally intermittent "pains in the stomach" that last for a number of days and are not obviously due to some other cause are apparently rheumatic. In others headaches and side aches seem to have the same meaning. Rather more frequently than in the adult a single joint may be involved for a time. Barlow has called attention to the relative frequency with which the pain is located in the hip joint alone, easily leading to an erroneous diagnosis. Probably even more frequently the cervical vertebrae alone are affected, giving rise to a stiff neck, the real nature of which may be uncertain until an endocarditis or a chorea intervene. The important point lies in the fact that these various slight, often vague and indefinite pains are quite commonly overlooked by all of us as indicators of a possible rheumatic condition, and valuable time and opportunity for preventing heart disease are lost.

The frequency with which rheumatism manifests itself as an endocarditis, a myocarditis, or more rarely a pericarditis, is what makes the disease so serious in childhood. It is no exaggeration to say that the majority of all children with rheumatism sooner or later have an endocarditis. Feer places the incidence at 80 to 90 per cent. A heart involvement is therefore not a complica-

tion, but the rule in children. Every case of rheumatism in a child is potentially a chronic heart disease, and a chronic endocarditis is a far more serious condition in the child than in the adult. The adult with a mitral lesion, with reasonable care and a favorable occupation need not be greatly concerned about the future, but a child of four or five with an endocarditis is face to face with permanent physical disability, economic incapacity, and an untimely death. The reason is evident. Rest and just the proper amount of exercise are the factors that determine the duration of life of the person afflicted with an endocarditis. These things can be controlled in the adult; in the child they cannot be controlled adequately, except under exceptionally favorable circumstances, that are commonly not present where rheumatism is most frequent. Add to this the fact that the rheumatic child is commonly a nervous child, a child that is hard to control, especially in the home, and it is plain why these cases are not treated as they should be, and why endocarditis is so serious in early childhood.

That chorea is a manifestation of rheumatism we have learned from the child. For some reason it is almost wholly restricted to the child and its age incidence runs a parallel course with that of rheumatism, i. e., it is most frequent at the time when rheumatism is most frequent. Probably the majority of all cases of chorea are preceded, accompanied or succeeded by articular rheumatism. Heart involvement is again the rule. Osler's statement that "with no disease, not excepting rheumatism, is it (endocarditis) so constantly associated," certainly agrees with my own impressions. Articular rheumatism and chorea are the only two conditions in which endocarditis occurs immeasurably more frequently than in any other condition, and in both it occurs about equally frequently. No less an authority than Still says: "It would perhaps be rash to say that rheumatism (including chorea, of course) is the only cause of endocarditis in childhood, but my own experience very strongly suggests this." The very frequent sequence in any order of articular rheumatism, endocarditis, chorea and rheumatic nodules, leaves little doubt that they are all symptoms of rheumatism. It is even thought that chorea is inseparable from endo-

carditis, that possibly the choreic movements are due to cerebral embolism from affected valves.

The rheumatic nodule is another of the interesting peculiarities of rheumatism in children. It is rare in the adult. It is apt to appear in crops of a few, to a dozen or more, and occasionally several hundred are present at one time. The nodules vary in size from a pin head to a pea, or even a half hazelnut. A common size and appearance is that of a boiled sago grain. They are not tender nor discolored and are usually movable, but not always—especially over periosteum. They can sometimes be felt better than seen, and often escape the eye unless the joint about which they occur is bent or the skin drawn tight. They are commonly located over the tendons, or ligaments, or periosteum of the bones, about the joints. Their favorite seat seems to be the region of the olecranon process and the condyles of the humerus. They usually occur here if anywhere. They are nearly equally frequently found about the knee joint, over the patella and the condyles; about the external malleoli, and on the tendons of the hands over the knuckles. They may be found along the spine and on the skull. I have been especially struck in the several cases that I have seen by the presence of one to six nodules over nearly every knuckle of both hands. They almost escape attention when the hand is open, but when closed are very prominent as clusters of glistening nodules. An especial interest attaches to this locality. A rheumatic nodule always means a serious rheumatic infection; probably without exception an endocarditis. The knuckle is the only common seat of nodules that is exposed even when the child is dressed, and the nodules are here very conspicuous because so superficial and because the skin is so tightly stretched over them. The detecting of a rheumatic nodule, then, on the knuckle or anywhere, tells us at once that the child has rheumatism and that it has an endocarditis. Not only that; it tells us that the rheumatic infection is a severe one, and that it is active now.

The nodules come and go in crops, often apparently as the disease advances or recedes. They may disappear in a few weeks, or may last many months. In a child that has a smoldering infection the nodules are often an ocular measure

of the activity of the rheumatic process. Just why one child has rheumatic nodules and many others have none is quite unknown. The exciting cause is very probably the same as that which produces the fibrinous deposits on the valves and on the pericardium in endocarditis and pericarditis, respectively. Histologically they are identical, each composed of fibrin, cells and fibrous tissue.

The rheumatic nodule is apparently a very rare condition in this country. Thus Holt says: "They are certainly not common in this country; and although I have made it a rule to examine rheumatic patients for them I have seen them but seldom, and they have been prominent only two or three times." I think this expresses the opinion of anyone who has looked for them in this country. In England, on the other hand, they seem very much more common. Thus Still finds them in nearly one-half of all the cases of articular rheumatism in children under twelve years old in the Great Ormond Street Hospital wards; and in nearly 30 per cent. of all the cases of chorea, cardiac, and articular rheumatism in the wards; and in 10 per cent. of the naturally less serious cases in the out-patient department. We have been told by Still and others that we do not look hard enough, and that we expect something large while they may be very small, no larger than a pin head. With this in mind and looking for them constantly, I have seen only four well marked cases in this country. The first of these presented some 150 or more nodules in various places on the body and was an English child that had come from London. The second was a child of Irish parentage, where the father also had rheumatism. The third and fourth cases are in a Polish child and a Jewish child, both now at the County Hospital.

The relationship of tonsillitis to rheumatism is still debated ground and offers no differences between the child and the adult except possibly in the question of therapy. That rheumatic children frequently have many attacks of tonsillitis, pharyngitis, adenitis and laryngitis, there is lit-

**Foot note.* Since writing the above I have seen these nodules so regularly in severe cases of rheumatism with heart involvement that I am inclined to accept Still's figures for our own material from the same social stratum. Thus at the County Hospital, at one time all of the children (3 in number) with cardiac rheumatism, had well marked nodules.

tle doubt; and it is well to consider and treat all children who have repeated throat infections as rheumatic. Whether this should be accepted as convincing evidence that the tonsil is the atrium for the rheumatic infection, and that its removal closes that atrium, is one of the many interesting questions that remain to be settled in our knowledge of rheumatic and allied disorders. Wilson has pointed out that the maximum functional activity of the tonsil is probably in early childhood; that in the adult the organ is probably less functional. It seems to me that so long as all of the functions of the tonsil are not fully known, so long as we do not know just why these organs stand like two sentinels, one on each side of the small opening through which all food and air must pass, so long we hesitate to remove them at the time when they seem most active, unless there is some overwhelming indication.

Prognosis: As compared with the adult the prognosis is grave. Very few children die in the acute attack, and hyperpyrexia is almost unknown. The danger of permanent and serious heart disease is the danger. The younger the child, the more serious the outlook. A child of four or five with an endocarditis has comparatively slight chance of reaching adult life. The condition itself is bad and the almost inevitably new attacks of rheumatism make the outlook very doubtful. An older child of ten to twelve years, under favorable circumstances, may live as long as an adult with the same condition. For obvious reasons, the prognosis is much worse among the poor. The rheumatic nodule always gives a serious prognosis, but not necessarily a fatal one. In one case that had rheumatic nodules and a very severe endocarditis at four years of age, the condition is now excellent at six years. Pericarditis gives a most serious prognosis, even as to life.

Diagnosis: A diagnosis of rheumatism in the first two years is almost without exception an error. Rheumatism at this age is so much rarer than other conditions that it hardly enters into consideration. The most common condition present, especially in the first year, is scurvy, and yet the swelling, not of, but near the joints, the exquisite tenderness, the typical soreness and the feeding history should easily exclude rheumatism. Syphilitic osteochondritis is not infrequent at

this age, but presents a greater degree of pain and swelling than rheumatism ever does in a baby, is usually of only one joint, commonly the elbow, and the child presents other evidence of lues. Gonorrheal arthritis is rare and yet more frequent than rheumatism. It is distinguished by the presence of gonorrhea elsewhere and by bacteriologic methods. Septic arthritis is another condition that can usually be easily excluded. In all of these conditions there is very intense pain and tenderness. *Intense pain and tenderness in a child under two speak strongly against, not for, rheumatism.*

This applies almost equally forcibly in older children. Severe pain would lead one to think rather of an osteomyelitis than of a rheumatism.

The important point in diagnosis throughout early childhood is to bear in mind the fact that vague, indefinite pains, "growing pains," headaches, pains in the stomach, repeated attacks of tonsillitis with articular or muscular pains, probably are rheumatism, and that if they are not diagnosed and treated as such most serious consequences are likely to ensue. To wait for a diagnosis until the child has the symptoms of an adult is to invite disaster. The articular pains may be so slight as to be absent or unnoticed; and any case of rheumatism may present the symptoms of joint or muscular pains, endocarditis, myocarditis, pericarditis, tonsillitis, chorea, or rheumatic nodules in any combination, or in any sequence, or at any interval.

The rheumatic nodule is pathognomonic of rheumatism and practically so of endocarditis. Its rarity with us gives it little negative diagnostic value.

Treatment: Three points stand out conspicuously in the treatment of rheumatism of children:

1. An early diagnosis.
2. Rest in bed.
3. The salicylates.

Every case of rheumatism, no matter how slight, is potentially a heart disease, and the earlier the disease is recognized the more can be accomplished in warding off this disaster. Careful protection against sudden exposure to cold and damp, and against a too rigorous climate; the judicious use of light flannel underwear, the avoidance of cold wet feet, the passing of the

winters in a warm, equable climate, all have prophylactic value in preventing more serious manifestations of the disease. It is, however, often hard to carry out the ideas one would like, because the evidence of rheumatism and of any possible or probable danger is often so slight to the parents that it is hard to convince them of the necessity of such measures until it is too late. It is this again that makes of rheumatism so serious a disease among the poor and among the unintelligent. Here the early diagnosis is commonly impossible. The child is brought even to the dispensary only when he is *sick* with a severe articular rheumatism, with an advanced chorea, or an already developed heart disease, those earlier symptoms, which have probably been called "growing pains," that might have been used prophylactically, having been overlooked or neglected. Even when the diagnosis is established, it is difficult or quite impossible to carry out the second great therapeutic measure.

The value of rest in bed can hardly be overstated. Every rheumatic child belongs in bed and belongs there until all articular symptoms are gone and some weeks longer. If an endocarditis has developed, or a myocarditis, or a pericarditis, rest in bed becomes not a question of weeks, but of months, preferably of many months. This is often hard to carry out. The rheumatic child is commonly a nervous child and the nervous child is hard to manage, especially in the usual environment of the home. It is just these cases that so often require therapeutic separation from the mother. Even a trained nurse in the house is wholly inadequate if the child remains a part of the family. Complete separation with one stranger, or removal to a hospital ward, is often absolutely essential to obtain the desired rest. The younger the child, the greater the difficulty. In a new environment, however, without the presence of a yielding mother, the child soon acquires the bed habit and becomes quite content.

How utterly impossible it is to carry out a proper rest therapy in the homes of the poor is well known to all of us. It is here that we see that pathetic class of cases that develop an endocarditis and finally go to the hospital for the first time with a threatened compensation. They remain in bed a few weeks, or even months, and

are dismissed in good compensation. At home they at once resume their usual active life till tiredness and shortness of breath and edema again send them to the hospital. This goes on until the child finally yields to an attack from which he cannot rally, or develops, following violent exercise, an acute dilatation and pulmonary edema.

All that has been said of articular rheumatism and of endocarditis applies as forcibly, or more so, to chorea. We all keep an acute endocarditis in bed, but are we equally careful of chorea? Do we sufficiently have in mind that the chances are greatly for rather than against an endocarditis developing? The choreic child belongs in bed till all symptoms are gone, not only because rest in bed is the most important therapeutic agent in stopping chorea, but also because nearly every choreic has ultimately an endocarditis, so that it is best to treat them all as if they were coming down with it or had it. I have a feeling that many a severe endocarditis can be avoided, or a mild one held in check and ultimately cured by this measure. How difficult again this procedure is to carry out in that very stratum of society where it is most needed, is only too evident. St. Vitus' Dance is still only too commonly regarded as a queer, grotesque, very inconvenient and annoying disease, rather than a most serious one. The choreic quite commonly staggers about as long as he can and only remains in one place when he can no longer get about. For these reasons I think the choreic child, unless he can be kept isolated and in bed in a good home, belongs imperatively in the hospital where a moderate isolation and the discipline of the strange person and the strange environment will calm him as nothing else will.

The advantage of the rich child with rheumatism in any form is evident. It can be isolated and kept in bed in a remote part of the house—in the family but not of the family—for a long time, in the care of a nurse. Economic and household conditions are such that this can be kept up for five or six months, if necessary, in a case of endocarditis or protracted severe chorea. What is equally important, the return to a fairly active life can be properly graded over a period of weeks, months and even years, and does not consist of one leap from the bed to the play-

ground. The winters can furthermore be spent in a warm, equable climate and a vocation can ultimately be chosen that does not require hard manual labor. For all of these reasons the treatment and the ultimate outcome of all cases of rheumatism in children have an intimate relation to the intelligence and the means of the parents.

One of the objections that is commonly made against a prolonged rest in bed is that "one cannot get strong in bed." How untrue this is, is shown in just these cases. To a child with articular rheumatism, or endocarditis, or chorea, with the marked anemia that always goes with it, who looks thin and pale and tired and worn when up and around, rest in bed acts like a veritable tonic, as truly as it does to the tubercular patient who has a fever.

The drug treatment offers no noteworthy differences from that of the adult. The salicylates have just as definite an action in the one as in the other. They should be used in all acute manifestations of rheumatism, whether an arthritis, an endocarditis, or a chorea. They unfortunately have little action on chorea, except perhaps in the early stage if accompanied by fever. The rheumatic nodule indicates an active rheumatism that requires active treatment.

4529 WOODLAWN AVENUE.

SOME CONSIDERATIONS OF BLOOD-PRESSURE.*

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While we are yet but skirting the field of knowledge made available by the study of the pressure of the blood, our deductions are becoming more accurate daily, and the physician who does not avail himself of the facts obtainable is neglecting one of the most useful procedures at our disposal, not only in diagnosis, prognosis, and treatment, but in what is of greater importance, prophylaxis. To the obstetrician and surgeon as well as the internist is this of great value. It often yields surprising information and in places where you least expect to find it.

Cabot states that next to the stethoscope the sphygmomanometer is the most important instrument of precision at our disposal.

*Delivered before Galesburg Medical Society.

Whether the better instrument be an aneroid or one of the mercurial type is a matter of opinion. There are objections to both, for while the spring of the one may weaken, the mercury in the other may oxidize or the tube be of unseasoned glass. On the whole, the aneroid is more portable and convenient and will be found the more generally useful, particularly if occasionally compared with a standard mercurial instrument.

In using it, it is well to adopt some routine system for the purpose of better making comparisons. That usually followed is to apply a standard five and one-half inch cuff to the bare left arm, the patient seated with the arm extended and resting relaxed on a table so that the instrument is on a level with the heart.

Just what to consider the normal pressure is difficult to state. Each individual is a law to himself and a deviation from his own average obtained after a number of takings is of more import in his case than a comparison with the general average. It is usually considered that the normal is 120 mm. for a man of twenty, with the addition of half a point for each year above that. In women the average is about ten points lower. The normal range is about fifteen points either way.

It is no more difficult and far more accurate to determine the readings by auscultation rather than by palpation of the radial artery. By palpation not only is the systolic pressure obtained with less accuracy but the diastolic pressure is determined with such difficulty that few practitioners place any reliance in it. By auscultation the systolic pressure can be determined to the point and the diastolic within three to five points. The stethoscope should be applied lightly over the brachial artery immediately below the cuff, compression applied until all tones cease, then slowly diminished until the following series of tones are distinguished:

1. A clear ringing tone, the observance of which gives the systolic reading;
2. The same tone accompanied with murmurs;
3. Reappearance of clear tone without murmurs; rapidly succeeded by
4. A dull tone; then within a few points
5. Disappearance of all tone.

If the diastolic reading is taken upon the disappearance of all tone it is three to five points

below a reading taken during the height of the dull tone. The former is more easily taken, but the latter more accurate.

Both systolic and diastolic pressures should be determined with accuracy, as the difference indicates the pulse pressure and is the measure of myocardial values. One who is satisfied with obtaining the systolic pressure only is deriving a minimum of value from his observations.

The diastolic pressure measures the arterial resistance that the heart must overcome.

The pulse pressure measures the force of the ventricular contraction in excess of the arterial resistance.

The systolic pressure is the sum of these two factors.

Willard J. Stone, as the result of painstaking studies, states that the pulse pressure should be equal to half the diastolic; that when it exceeds that proportion the heart is laboring under an excessive burden, and that when below that proportion it indicates a failing heart unable to carry its normal load.

It is very essential that each factor be determined as information derived from a determination of the systolic pressure alone may be very misleading. For example, the normal figures at the age of fifty are D. P. 90, P. P. 45, S. P. 135; but were one content merely to ascertain in an individual of this age that the systolic pressure is 135 he might be sadly mistaken. Should the factors be D. P. 110, P. P. 25, S. P. 135, he would know that the arterial resistance is increased from 90 to 110, that the compensatory pulse pressure should be 55, and the systolic pressure 165. The assumption would be that such a condition had existed during compensation but that a non-compensating heart had failed from 55 to 25 and was now performing less than half its work.

In a case of pneumonia, should one find the D. P. 80, P. P. 70 when it should be 40, he knows the overload of the heart is 30, or seventy-five per cent. With such an overload the heart requires supportive measures or cardiac failure may ensue. Should later readings show the same diastolic pressure but a pulse pressure of 20, he feels that myocarditis has now reached the stage of exhaustion. In myocarditis presaging exhaustion the pulse pressure may exceed the diastolic, but a prolonged excess of over fifty per cent is a matter of serious import. As we fa-

miliarize ourselves with these facts we administer less of the nitrites to lower the systolic pressure at the expense of the heart. Given diastolic and pulse pressures too high but proportionate and distinct harm may ensue from the administration of such drugs as the requisite amount of blood is not sent to the various organs. Frequently the management of a case of hypertension resolves itself into an attempt to make the factors proportionate, that is, to see that the force of the heart be made sufficient to overcome the arterial resistance. It may even be necessary in some instances of hypertension to administer small doses of strychnine and digitalis to tone up the heart rather than attempt to lower the tension by the administration of vaso-dilators. When the diastolic and pulse pressures are both low but proportionate we avoid the use of cardiac stimulants and thus whipping up the heart unnecessarily. Frequently in convalescence from pneumonia and other acute affections we have both factors low, due to arterial and capillary dilatation. In such instances one who is unfamiliar with these factors but who draws his deductions from the small weak pulse will conclude that the heart is failing and administer cardiac stimulants. Nothing is more erroneous than to overstimulate a heart working against lessened resistance, thus causing it to run like an engine without governors and wear itself out. The determination of these factors is of great value in prognosis and treatment; low diastolic pressure denoting vaso-dilatation and calling for vaso-constrictors, whereas excessive diastolic pressure indicates venous stasis and requires vaso-dilatation.

An overload may exist for years without circulatory embarrassment, but if it long exceeds fifty per cent there is danger of cardiac exhaustion. The greater the overload the greater the danger. When the pulse pressure has fallen to twenty per cent of the diastolic, circulatory embarrassment has occurred, and even though there be no other evidence of such failure such patients are undesirable surgical risks because on the brink of cardiac exhaustion. In shock or hemorrhage circulatory failure is due to abolition of venous rather than arterial tone. Venous blood is not supplied to the heart sufficiently and decreased output from that organ lowers the pulse pressure on the arterial side. In hemorrhage a progressively falling pulse pressure indicates progressive

hemorrhage. In cardiac neuroses one finds great variations in the readings on the same patient.

Hypotension. Low systolic pressure may be due to a weakened heart rather than decreased arterial tension and the sudden administration of adrenalin may cause death by increasing the resistance already too great to be overcome by the enfeebled organ. No intelligent treatment can be formulated for hypotension until the value of each factor is determined. It is not always easy to ascertain whether hypotension is a cause or an accompanying condition. Its cardinal symptoms are headache, vertigo, faintness, and an "all-gone" feeling, most of which symptoms are alleviated when the patient assumes a reclining posture. When hypotension exists with no demonstrable cause tuberculosis is to be suspected, although it may be due to other lesions. The treatment is very difficult but a comparatively slight rise may be accompanied with great benefit to the patient. Regulation of habits, constipation, sleep, exercise, the use of shower baths, etc., are among the remedial agencies.

Hypertension. This subject has caused the outpouring of a great mass of literature, much of which unfortunately is very misleading. Specific treatment is out of the question until one ascertains the cause and causes to be considered are about as numerous as are those of headache. If of toxic origin, the blood-pressure may return to normal when the cause is removed, but when permanent damage has been done to the organs, one's chief efforts are directed toward the prevention of further damage and the maintenance of the circulation. J. L. Miller asserts that in virtually all instances of permanent hypertension there exists a chronic nephritis even though there may be no evidences of it in the urinary findings, neither albumen, casts, blood cells, nor change in the amount of urine. He further states that if all the urine is examined very carefully there will be found at some time a shower of casts, and that the cases that come to autopsy show nephritis microscopically though it may never have been apparent during life nor the kidney show it macroscopically after death. The prognosis of hypertension without demonstrable lesion is, however, usually more favorable than when demonstrable lesions exist.

There is no routine treatment and literature is replete with ill-advised suggestions emanating

from men whose lack of observation and judgment is to be deplored.

Thyroid extract, according to Miller, Lichty and others, who have tried it, is of no value. Its administration is irrational, as there can be no object in placing a patient at rest to decrease nitrogenous waste and at the same time administering an organic extract to increase such waste.

The use of high frequency is disappointing.

Neither buttermilk nor too great a reduction in the diet is a specific.

Vaso-dilators are of very transient service and iodides of little benefit.

There are some measures the use of which may entirely overcome temporary hypertension or alleviate the condition and prolong life where the high tension is permanent. Thorough elimination should be maintained, bad habits overcome, excessive eating avoided, overburdensome flesh slowly reduced, and care taken that the amount of liquids taken near bedtime be restricted. The requisite amount of sleep should be obtained and for this sedatives are often of value. Prolonged rest in bed is often very useful. Many speak highly of Fischer's alkaline treatment.

Above all, mental strain, business cares, and domestic infelicities should be avoided.

He who neither hurries nor worries rarely acquires hypertension.

AUTOGENOUS VACCINES IN THE TREATMENT OF CHRONIC PUS INFECTIONS.*

MAX L. MENDEL, M. D., CHICAGO, ILL.

A few years ago only a comparatively small number of men, trained in bacteriology and immunology, were working on the then so-styled "opsonic therapy." Today I doubt if there is a man in this room who has not been made to believe by detail men of the pharmaceutical houses that all he needs is to supply himself with their bottles, syringes and ampules in order to become an expert bacterio-therapeutist.

In the early days of vaccine therapy the vaccines were nearly always of the autogenous type, i. e., the particular kind of infecting organism was studied by a man trained in bacteriology and his vaccine was made by himself, prepared from

*Read at the meeting of the Englewood Branch, Chicago Medical Society, March 3, 1914.

and for each individual case. Success attending this form of treatment was noted by physician and laity alike. The profession, in order to meet the demand for vaccine treatment on the part of their patients, looked about to see how this request could be taken care of. Many excellent men, skilled in their profession, were untrained in this kind of therapy and were too busy to go into it in detail. As a consequence our pharmaceutical friends, ever ready to be of assistance, conceived the idea that here was a great field for their endeavors and as an outcome of their zeal and untiring efforts we have had urged upon us a vaccine for nearly every kind of ailment known to mankind.

I will not take up your time with the theories and varieties of immunity, and the factors entering into it, nor with the variation in virulence of bacteria, the opsonic index and its relation to vaccine therapy. I am sure the paper following mine on the program will take up all these matters in detail. I would like to take just a moment here to give you the technique of preparation of autogenous vaccines as made in the Englewood Hospital laboratory. I am indebted to Dr. Lynn of the pathology department for assistance in the presentation of this method of technique.

Technique. In pulmonary infection, e. g., bronchitis, the first important step is to collect material from the bronchi and not from the posterior nasal cavity or the pharynx. Have the patient raise a "plug" from the bronchi. As this is liable to be contaminated or mixed with organisms from the mouth and respiratory passages, it is washed off in a test tube containing sterile normal salt solution and rinsed in a second tube of salt water and then in a third. After these washings it is ready to be plated. In pus infections it is advisable to get deep seated pus, because on the surface there is liable to be contamination from both pathogenic and non-pathogenic organisms. Take pus from the border line of the healthy tissue because chemical changes occur in the center causing death and disintegration of the virulent organisms. The plate is of blood-agar, twenty-four hours old, and made of human blood serum. Pick up some of the organism containing material on a platinum loop and place it on the surface of your agar

plate, spreading it out with a triangular shaped platinum wire.

The plate is then incubated for twenty-four hours at 37° Cent. Usually several different colonies will be found growing. From the nature of these growths and from stained smears the organisms can be identified. Selecting the organism you suspect of causing the trouble, transfer separately to three blood agar tubes and incubate for twenty-four hours at 37° Centigrade. Then make stained smears. If the cultures are found to be pure you are now ready to wash off the growth. This is done by introducing 2 or 3 c.c. of one-half per cent. phenol solution into each tube and transferring this suspension to sterile test tubes.

Counting. Draw out to a fine point a sterile glass pipette and bend at an angle. Draw blood from the finger tip or ear up to a point "x" in the tube. Into the same tube draw up the well shaken suspension to the mark "x." Mix well the two on a glass slide and make smears as for blood count. Stain. Count ten fields, e. g.,

Organisms.	Red bl. cps.
30	70
20	160
40	80
30	100
60	90
70	80
20	120
20	120
40	60
30	20
<hr/>	
360	900

5000000 : X :: 900 : 360

900) 1800,000,000 2,000,000 organisms per c.mm., which amounts to two billion per c. cm.: 15 minims = 1 c.cm. 1 minim would contain 133,333,333 organisms. Sterile physiological salt solution is now added for proper dilution. The organisms are killed by sealing the ends of the glass tubes and immersing them in water and heating for one hour at 59° Centigrade. After twenty-four hours one of the tubes should be opened and an attempt made to get a growth from it on blood agar. If no growth occurs the vaccine is ready for use.

Inoculation Technique. Autogenous vaccines are injected subcutaneously. They are rarely

given intravenously, or intramuscularly, nor by mouth or per rectum. A glass hypodermic syringe, accurately graduated, makes the best kind of syringe for inoculation. The vaccine may be put up in single dose ampules or in a single large bottle or container. In order to get a uniform suspension the ampule or bottle of vaccine should be well shaken before using, as the bacteria sink to the sides or bottom. Use the infra-clavicular region as the site of injection. The skin here is thin and loose. Do not inject into the arm or leg where there is liable to be pain on account of muscular activity, or where the skin sticks very tightly to underlying fatty tissue. The local reaction usually does not occur for from six to ten hours after the injection. Some tenderness on pressure, slight reddening and swelling may or may not be present. Marked reaction usually indicates too large dosage and should be avoided. The systemic effect varies¹, with the dose injected², the patient's idiosyncrasy, and³ the kind of infection.

The negative phase, during which time the opsonic index falls, usually occurs the first day, during which time there may be headache, slight elevation of temperature of one or two degrees, nausea, malaise, and more or less increase in suppuration. Following the negative phase comes the period which is known as the positive phase, in which there is freedom from pain, headache, and malaise. There is a drop in temperature and the patient expresses himself as feeling free from all the symptoms he previously experienced. There is a diminution in inflammatory reaction and in the suppuration.

After a number of successful vaccinations there comes a "sustained high tide of immunity," as Wright calls it. The patient improves steadily, finally resulting in recovery. Of course the goal strived for is to reach this long sustained positive phase with as few vaccinations as possible.

Dosage in the treatment with autogenous vaccines is of great importance. The local and general reaction must be taken as indicators of dose. If the reaction is prolonged, with much swelling, tenderness and redness, there has been too large a dose given. Slight reaction or none indicate too small dose. A short negative phase followed by a short positive phase would suggest insufficient dosage, while an extreme dose would

be manifested by a long negative phase. Too frequent dosage has a tendency to bring on a "cumulative" negative phase. Infrequent inoculations with small quantity bring about only temporary improvement and do not succeed in reaching and holding the high tide of immunity. The average interval between injections in chronic cases is five to ten days. The interval is gradually increased after improvement is permanent so that there is no abrupt termination of treatment.

Theoretically, an autogenous vaccine is much to be preferred over a stock vaccine in vaccine therapy on account of its precise specificity.

Theoretically autogenous vaccines bring about the formation of the most suitable immunizing substances with the organisms causing the disease. This vaccine when reintroduced stimulates further the processes tending toward recovery, by utilizing the various tissue reserves. It is stated by men most skilled in the use of vaccines that their experience shows that the most satisfactory and the most uniform therapeutic results have been obtained following the use of autogenous vaccines, and base their claims on the following statements:

1. Any result that is possible in therapeutic immunization can be secured by autogenous bacterial vaccines.

2. Therapeutic results otherwise unobtainable may follow the use of autogenous vaccines.

3. Autogenous vaccine therapy makes prerequisite a bacteriologic diagnosis, the only really scientific method of approaching the treatment of an infection.

4. If carried out in detail by the practitioner it assures the possession of a certain skill and experience, without which vaccine therapy is merely an empiric procedure.

5. It assumes a certain personal intimate touch between the practitioner and the patient.

6. It assumes the independence of the practitioner from commercial interests.

7. It elevates vaccine therapy to its proper level of a special practice in the hands of thoroughly qualified physicians.

An objection which is raised against the use of autogenous vaccines is that regarding the loss of time required in making the vaccine, especially in an infection which is rapidly progressing. In the hands of an experienced scientific man a vaccine could probably be prepared in twenty-four

hours, i. e., if the infection be caused by the more usual pyogenic organisms.

Another question which presents itself is regarding the possible harm that may occur from the use of autogenous vaccines. With but few exceptions dangerous accidents are most infrequent provided:

1. The vaccine is scientifically prepared.
2. It is kept free from contamination.
3. It is given in proper dosage.

Anaphylaxis very rarely occurs even in a prolonged series of vaccinations. I did not find any record of fatality from anaphylactic shock following the use of autogenous vaccines.

It is to be understood that autogenous vaccines should not be relied upon in pus infections where surgical interference is indicated, e. g., appendicitis, mastoiditis, etc. To postpone operative intervention and expectantly inoculate with autogenous vaccines constitutes one of the dangers of this particular kind of therapy, and is to be condemned. In the treatment of chronic infections dangers from this source are not so pronounced and fatalities are very infrequent, but the patient is liable to suffer from needless pain, as for example in calculi, abscesses which should be drained, in bone necrosis, etc.

In autogenous vaccines the most frequently made use of organisms are:

1. *Staphylococcus pyogenes aureus*, used largely in the treatment of chronic furunculosis, sycosis, eczema, and acne. It is especially indicated in chronic boils, and usually produces very satisfactory results. Subacute and chronic pustular eczema with considerable oozing frequently is quite amenable to inoculations of autogenous vaccines. The staphylococcus infected hair follicles in "barber's itch" subside and clear up under treatment with vaccine sometimes after all local treatment has been resorted to in vain. In the treatment of chronic acne, positive results in treatment with vaccine are not so frequent as was at first claimed. The treatment usually requires a long period of time, several months. Satisfactory results are most frequent in the cases of acne vulgaris, in which we find pronounced pustular formation. The dosage varies from fifty million to a hundred million.

2. Streptococci are divided into so many groups and strains that in order to meet with even a moderate amount of success an autogenous

vaccine is the only reliable vaccine which can be used where this organism is the causative factor in the infection. The autogenous vaccine of *streptococcus pyogenes* is useful in wound infections with cellulitis, adenitis, lymphangitis, etc. In puerperal infection, in which streptococcus is the causative factor, and in erysipelas the vaccines give few if any satisfactory results. In chronic rheumatism and arthritis deformans, Dr. Rose-now of Rush has isolated a form of streptococcus from the regional lymph glands of the individual, and has successfully treated seventy cases with autogenous vaccines made in these cases. The dose of killed streptococci varies from twenty-five to five hundred million. In the treatment of rheumatism of gonorrheal origin where the organism is difficultly accessible and in tubercular infections most men use the stock vaccines. Like the streptococcus, the colon bacillus presents a variety of forms. In treating a patient infected with colon bacillus, e. g., gall bladder infection, peritonitis, rectal abscess or fistula, an autogenous vaccine is the indicated therapy treatment.

Through the courtesy of the attending men at this hospital I have had the privilege of seeing most of the patients here who have been treated with autogenous vaccines. It is a little difficult to get an accurate, complete history of each case. Some of the patients went home before the treatment was completed. Others who were calling at the hospital for vaccinations were irregular in their calls. Others failed to note and report their symptoms definitely. However, generally speaking, in those cases in which an accurate and reliable history was obtainable, the result obtained was entirely satisfactory, and justified the use of this form of therapy.

To sum up briefly the points I have tried to bring out in this résumé on treatment with autogenous vaccines:

1. On the technique of preparation and administration will largely depend the success of indicated autogenous vaccine therapy.
2. Where indicated, the autogenous vaccines are much superior to other forms of vaccines.
3. Mixed autogenous vaccines may be useful in some cases, but usually one organism can be isolated as the causative factor.
4. Autogenous vaccines should be prepared by the doctor or his assistant, and not by some laboratory distantly removed from his patient.

5. Vaccine therapy, in order to be a scientific form of treatment, must be based upon the kind of infection of each individual case.

6. Autogenous vaccines, per se, usually do not cure, but they act by stimulating the natural immunization processes.

In the above paper I have quoted freely from a series of articles on vaccine therapy by Drs. Howland, Hunt, Hektoen, Ohlmaier, Edsall, Theobald Smith, and others.

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CASE REPORTS. TRICHINOSIS AND TYPHOID FEVER.*

PAUL CHESTER, M. D.,
CHICAGO.

CASE OF TRICHINOSIS.

This patient came to the hospital with a diagnosis of typhoid fever, and at first this opinion was accepted because the temperature curve so nearly resembled that of typhoid, showing a continuous fever with morning remissions, and high evening rise. But further examination revealed symptoms which are not characteristic of typhoid. It was observed that the patient had much more pain in legs, in the back and in the chest than is common in typhoid, and that she had severe chills and sweats. Her pulse also showed an atypical rate and regularity for typhoid.

When we came to examine the blood we discovered that she had a leucocytosis of 14,500, and at another time 16,000. The Widal reaction was negative. Then we made a differential count of the leucocytes, and found an eosinophilia of 20 per cent. The polymorphonuclears were 60, the lymphocytes 19, and the large mononuclears 1 per cent. Now, the eosinophile cells may be increased in a number of conditions, but a large percentage is so characteristic of trichinosis that we then removed a piece of the triceps muscle, and there found the trichinae. Under the microscopes on the table behind me are these specimens of muscle and blood, which I will be glad to have you examine.

After studying the symptoms more carefully, we found that about eight weeks ago she ate some pork chops, which undoubtedly were insuffi-

ciently cooked. No gastro-intestinal symptoms followed at once, but in about ten days she noticed swelling of both eyelids and began to have severe pain in the legs, back and arms. The muscles became tender to touch, and swelled, and in the right leg an intense, diffuse myositis developed which has not yet entirely disappeared. Her fever continued for two weeks, then gradually returned to normal.

Two other members of her family ate of the same meal, and later developed symptoms similar to hers. Examination of their blood showed eosinophilia in both. This patient's symptoms have now practically all disappeared, and although the trichinae will remain encysted in the muscles indefinitely, there is no reason to suppose that there will be any return of the trouble.

CASE OF TYPHOID FEVER, WITH COMPLICATIONS.

This patient also came to the hospital with a diagnosis of typhoid fever, and this soon proved to be correct. He arrived here July 15 with a history of having been sick nine days. He had a positive Widal, a leucopenia, rose spots, and seemed to be running a perfectly typical course of typhoid. On the fourth day after admission he had a slight hemorrhage from the bowels, which, however, did not have any effect on the temperature.

The subsequent course of the disease can best be shown by this chart of the temperature curve. You will observe that the temperature continues in a uniform and regular curve, which is characteristic of typhoid fever, until eighteen days after treatment here, or twenty-seven days after the onset. Then, at a time when the fever should be declining you notice that it begins to go upward. At the same time the patient began to complain of pain in his right leg. Examination of the leg showed it to be slightly swollen, and to have a cyanotic appearance over the course of the large veins. He now had a phlebitis in the long saphenous vein.

On the next day he had an embolism of the lung, and on the next day another. The symptoms at this time were those of severe circulatory collapse. Suddenly, without warning, he became very weak; his pulse went up to 160, and his respirations 44. His fever shot up to 105.8 and then descended abruptly to below normal with a profuse sweating. During the next day he spat up bright red blood in the sputum, and moist

*Presented at meeting of Chicago Medical Society, Oct. 22, 1913.

rales were heard in the lungs. Pain in the lungs at the time of the embolism was not a marked symptom.

By this time thrombi had formed in the sapheus and in the femoral veins. The obstruction to the return circulation was now complete, and swelling of the leg followed, which became the most prominent symptom. You can see on the chart that the temperature curve has now changed from the regular type of typhoid fever to the irregular septic type with frequent chills and sweats. Then notice that as the fever began to improve it again went up to its original height, and repeated the curve of the preceding days. This was caused by phlebitis in the left leg, which ran the same course as in the right, except that from this side no emboli escaped. It is contrary to rule for both legs to be affected by phlebitis in typhoid, and the left leg is more frequently involved than the right.

An important point to be learned from this case is the relation in time of the onset of the phlebitis, swelling of the leg, and the production of emboli. We are accustomed to think of swelling of the leg as indicating phlebitis, and to expect embolism to occur after the formation of large thrombi. This case shows that pain in the leg, and not swelling, is the initial symptom of phlebitis, and that embolism occurs on the second day before the thrombosis is complete, and before swelling of the leg has become a marked feature. This observation has been confirmed by Dr. Mix, who experienced the same complications in his own case when he had typhoid fever.

THE VALUE OF BLOOD PRESSURE IN INTERPRETING SOME CLINICAL MANIFESTATIONS.*

H. A. CABLES, M. D.,
E. ST. LOUIS, ILL.

The cardiac cycle consists of two phases; as is well known, the first is the diastole, during which the cavities are filling with blood from the venous system; the second is the systole, in which the cavities empty themselves by the contraction of the muscle and the somewhat complete obliteration of the cavity.

The elastic arterial tubes are also another im-

portant factor in the circulation. While the arterial tree is slightly overfilled constantly—and this gives a constant pressure—there is suddenly thrown into this overfilled elastic tube a definite amount of blood at each cardiac systole. Room is made for this increase by a sudden and abrupt dilatation of the arteries, beginning at the aorta; and, as the liquid wave traverses the tube it is conveyed along until the capillaries are reached. This is the wave we feel and know as the pulse.

It is also well to recall that the elastic material does not extend into the wall of the capillaries, and this, coupled with the small calibre and large area in cross section, produces in them a steady flow of the liquid.

The difference between the systolic and diastolic pressure would represent the contractile power of the vessel wall, or, as it is termed, the pulse pressure.

The pulse pressure may be variable and either of the following conditions will influence it: 1. An increase in the amount of blood expelled at each beat of the heart would raise systolic pressure, and thus increase the difference between systolic and diastolic reading.

2. A rapid emptying of the vessels, the output of the heart remaining the same, will produce low systolic reading and thus increase the difference.

3. Rigid arterial walls will increase pulse pressure. If the arteries were rigid tubes the heart would be compelled to move the blood, as a whole, at each systole, while the flow would cease during diastole; this would increase the systolic pressure while the diastolic would fall rapidly toward zero.

It might be well to note here that in organic diseases of the kidneys, in arteriosclerosis, and in aortic insufficiency the pulse pressure increases, but in other organic diseases of the heart it is diminished.

The measuring of the pressure of the blood within the arteries depends upon the fact that vital or living tissue is perfectly elastic and therefore any pressure applied to the body surface will be directly transmitted to the underlying structures without any loss of force.

In 1855 Vierordt attempted to measure the blood pressure by placing weights upon the radial artery until the pulse was obliterated. Kries, in

*Read before Randolph County Medical Society, June 12, 1913.

1875, attempted to measure the tension by causing a pallor by means of the pressure of known weights.

Marey the following year applied the same principle when he incased the arm in a glass cylinder and compressed the contained air to a point sufficient to produce pallor, a point midway between pallor and flushing giving the blood pressure. Still later, Marey attempted to reduce the error by using only one finger.

Next Ray and Brown in 1878 attempted to measure the pressure by putting a membrane, stretched over a capsule, upon the skin and using air or water pressure. The capsule was connected with a water manometer. While this was an improvement it still was not practical.

In 1896 Riva Rocci introduced his mercury sphygmomanometer. There are a number of mercury instruments now on the market, but in all the principle is the same. In all the mercury instruments the diameter of the tube is 2 mm. The arm band is 12 cm. wide, so that the readings will be the same in fleshy or small arms as shown by Janeway.

The weight of the mercury contained varies in various makes, ranging from 35 to 45 gms., but careful observations fail to show any difference in the readings.

Technique. The patient should sit or lie down comfortably. The arm is bared to the shoulder. The cuff is applied above the elbow, allowing at least an inch of bare arm between the lower border of the cuff and the elbow.

The rubber bag should be so adjusted that the actual pressure from the bag is against the inner side of the arm and the upper border should be drawn more snugly than the lower part of the cuff. That part of the instrument containing the mercury column should be placed on a level surface, the two arms of the mercury should be even and on a level with "0" on the scale. With the balls of the first two fingers of one hand on the radial pulse, the air is pumped in until the pulse is no longer felt. The pressure should be raised about 10 mm. above this and close the stop cock between the pump and the mercury tube.

In a good instrument the column of mercury should not fall; if it does there is a leakage in the arm band or tubing.

With the fingers on the pulse the compression is relieved by allowing some air to escape until

the column of mercury drops about 2 mm. or one mark on the scale. The drops should be at about the rate of one or two beats of the heart. The first perceptible wave felt in the radial artery beneath the palpating fingers represents, on the scale, the systolic pressure.

Observing the mercury column it will be seen to oscillate, and as the pressure is relieved these oscillations become greater until a maximum is reached which corresponds to the instant when there is felt the maximum pulse wave at the wrist and this is the diastolic pressure. Beyond this point oscillations of the mercury cease. This is usually from 40 to 48 mm. lower than the systolic and the difference between the two is the pulse pressure.

There is a more accurate method of determining the pressure, the so-called auscultatory. This consists in placing a stethoscope over the brachial artery just below the elbow, but before it divides into the radial and ulnar. Air is pumped into the arm-band until no radial pulse is felt. The air is now allowed to escape by means of the release valve. At the appearance of the pulse a clear tap-sound is heard. This corresponds to the filling of the artery below the constricting band and represents the systolic pressure. There is a rapid change of sound and murmurs as the compression is still further reduced until at a point when there is no sound or murmur heard and this, according to Ettinger, is the diastolic pressure. The readings by the auscultatory method will be found to be 5 to 10 mm. higher than by palpation.

The normal pressure varies between 120 mm. and 140 mm. of Hg. for the systolic reading in the adult. Lauder Brunton found the maximum in children from 8 to 14 years of age to be 90 mm.

I have purposely gone rather minutely into details that possibly we may the better value the evidence in clinical work.

Pathologically the pressure may show a hyper or hypotension. Probably the hypertension produced by conditions of the digestive system is of prime importance because this frequently forms the entering wedge that eventually produces fatal condition in cardiovascular renal disease or apoplexy.

Russell, working along this line, came to the following conclusion relative to the pathology of

the condition. He claims that reflexes to the medulla from the splanchnic area during the process of digestion causes an arterial contraction. This, in a normal degree, may be designated the physiologic hypertension of digestion.

This normal condition may be prolonged into a pathologic one by either of two factors: 1. The absorption of an excessive amount of the products of digestion, or 2, the absorption of the products of proteid decomposition in the intestines. Therefore, concludes Russell, alimentary hypertension is the result of a normal abdominal arterial reflex, made excessive by overloading the digestive tract and the absorption of toxic substances from the large intestine.

The study of pressure in some cardiac lesions furnishes important information. In aortic regurgitation the pressure reading is very characteristic and the diagnostic point is the great pulse pressure. When the physics of the circulation is recalled it will be easily understood.

At each systole of the heart the left ventricle is called upon to deliver an excessive volume of blood into the aorta, caused by the regurgitation through the leaking valve. The result of this will be a sudden and great rise in systolic pressure.

Upon relaxation of cardiac contraction the large volume of blood in the aorta flows both forward and backward, thus causing a rapid fall of the pressure in diastole and the diastolic reading will be low. If there be present a sclerosis of the vessels the phenomena is still more pronounced.

In chronic myocarditis the sphygmomanometer often detects the change long before any of the clinical symptoms appear. The alteration in the cardiac muscle will cause a disturbance of the force and rhythm of the pulse. When not marked these signs may be intensified by the sphygmomanometer. The cuff is applied and the pressure raised till just below the systolic pressure. The pulse at the wrist will now show the irregularity of force and rhythm. The pressure in the cuff is gradually reduced and as it approaches the diastolic pressure, if there be a defective myocardium, the fluctuations of the mercury column will be seen to be irregular.

In no condition is the sphygmomanometer of greater prognostic importance than in pregnancy. It should be made a part of routine examination

and the intervals between tests should be made shorter as the period of gestation advances, and the test should be continued into the puerperium until all danger of eclampsia has passed. A high pressure or a decided rise always foretells the approaching storm and if the warning is not heeded the physician will soon be called upon to meet a desperate condition.

It is perhaps in cardio-vascular renal disease that the greatest usefulness is found. In chronic interstitial nephritis it usually furnishes important evidence as well as definite warning of the approaching storm.

Says Janeway, in summing up his report of a study of one hundred cases of high pressure: "Complaint of polyuria, nocturnal frequency, marked headache or visual disturbances and high blood pressure, especially if the patient be below fifty years of age, should make the prognosis very guarded, for uremia is a frequent mode of termination in such cases."

Dr. Barker, in discussing this paper, says that 75 per cent of Janeway's cases had chronic renal disease, and 7 per cent had diabetes, while only 4 per cent had evident arteriosclerosis and 4 per cent had coronary sclerosis, but, continues Barker, "recent pathologic studies have revealed changes in the small arteries which supply the internal organs, especially the kidneys, brain and heart. These cases we usually refer to as instances of chronic nephritis with high blood pressure."

Edward Cornwall, speaking of high blood pressure, says that as a symptom it does not ordinarily call for direct treatment, for it is mostly a conservative procedure.

Prendergast says that in 85 per cent of the cases in which hemorrhages have occurred after opening the eye, the taking of the blood pressure has shown that arteriosclerosis and nephritis were back of them. All arteriosclerosis, he says, begins with toxemia.

In closing this part of my paper let me again emphasize the fact that mere hypertension, per se, does not need treating and indeed it may be wise not to interfere with it, but when it shows evidence of material harm or danger to the patient, then it should be lowered, but here again a warning, not to persist in too great a lowering because of the harm that may result therefrom

due to the lowering of the nutrition of the internal organs.

It is just as important to consider low blood pressure because it is oftentimes an important element in the symptom complex of a disease. It is important to ascertain, if possible, the normal low limit of health. Experience teaches that this is 105 mm. in man and 95 mm. in woman.

Neu determined that the lowest pressure compatible with life to be 40 to 45 mm. and occurred only with a subnormal temperature and unconsciousness.

Edgecombe's grouping of the types of disorders showing low pressure is excellent and is as follows:

1. Subjects with poor circulation, with cold hands and feet: Warm baths, massage or exercise may cause a temporary rise, but it is difficult to effect any enduring improvement.

2. Cases of neurasthenia characterized by profound fatigue either somatic or psychic or both. A rise of blood pressure almost always accompanies improvement.

3. Cardiac dilatation, with or without valvular disease. A rise of pressure in these cases is an indication of progress towards recovery.

4. Phosphaturia, in whatever condition it may occur, generally shows a low pressure. In uncomplicated pulmonary tuberculosis the systolic pressure falls while the diastolic remains stationary. Low tension is so frequently found in this condition, especially marked in the advanced cases, that Emerson regards the blood pressure as a valuable diagnostic sign. He says that hypotension is progressive as the process advances and rises with progress towards recovery, the pressure returning to normal in cured cases. Reitter suggests that a hypotension associated with evidence of nephritis indicates renal tuberculosis.

Typhoid fever is more often accompanied by hypotension than any other infection. This is manifested by the dicrotic pulse. The systolic readings run between 90 and 100 mm. When hemorrhage occurs the drop is more pronounced. As the patient recovers the pressure gradually rises, but in fatal cases it does not show a rise but may fall. It thus becomes useful in making a prognosis.

To the surgeon hypotension is a very impor-

tant element in determining the severity of shock whether caused by accident or a surgical procedure.

In conclusion, I would urge a more extensive use of blood-pressure apparatus. A careful study of the records will indicate clearly in time the proper place it should occupy in both diagnosis and prognosis.

HYDROTHERAPY IN THE TREATMENT OF THE INSANE.*

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I am prompted by the meagerness of existing statistics upon this subject, to present, for your consideration, a report of results obtained in the treatment of five hundred and eight cases at Wauertown State Hospital.

All cases utilized for this report were treated in 1909, 1910 and the first two months of 1911. Therefore, two years is the shortest time and something over three years the longest since these patients received treatment.

The classification is the modification of Kraepelin's, uniformly followed in the State Hospitals of Illinois since their clinical reorganization.

In noting results, cases remaining in the hospital have been called continuous; those paroled as improved or recovered, who were before March 1, 1913, returned to the above or to some other hospital for treatment, recurrent; those paroled and discharged remaining out of custody and resuming their social and economic duties, recovered. There is obviously a certain per cent of this last group which would upon psychological examination show defect or incomplete recovery. I desire to especially define the limitations of the term recovered as used in this report.

The treatments were directed toward obtaining sedation, elimination or stimulation, according to the needs of the patient. The sedative pack was most frequently used. Early in the beginning of the work warm packs were used in an effort to secure sedation, later replaced by moderately cold packs carried through the neutral period. The cold procedure has given far more satisfactory results. In a few selected

*Read at a meeting of alienists and neurologists held under the auspices of the Chicago Medical Society, June 23-25, 1913.

cases the neutral flowing bath was employed. For the stimulating effects, graduated cold packs followed by mechanical and thermal stimulation to insure good reaction were employed. The eliminative effect was secured by the use of the steam and the electric light cabinets.

The treatments as prescribed by the attending physician were administered by nurses especially trained in the technique of hydrotherapy. The prescriptions were varied daily, bi-weekly or weekly, the report concerning the reaction of the patient being the guide. These reports were made daily for each patient, by the nurses administering the treatment and contained the following data: pulse, respiration and temperature before and after treatment, quality of reaction and behaviour of the patient.

I have for convenience divided the cases into four groups.

paroled and discharged during the three year period, 1903 to 1906, was 38.2; 1906 to 1909, 44.63 and 1909 to 1912, 67.83. The last of those three periods represents the period of most efficient hydrotherapy service, during the second period some procedures were carried out on the ward, but without especially trained help; during the first period no hydiatic measures were employed.

An increase of 23 per cent over the previous period of equal length is shown.

An observation which has been quite constant, is that the patient is more comfortable while in residence, comes less in conflict with his associates on the ward, and consequently requires less restraint.

We may, I think form the following conclusions:

1. The percentage of patients returned to

GROUP 1—DEMENTIA PRAECOX.

Types—	No.	Continued—		Recurrent—		Dead—		Recovered—		1-100	100-200	200-300	300+
		No.	%	No.	%	No.	%	No.	%				
All types.....	172	74	43	12	6.9	14	8.1	72	41.8	22.2	22.2	18.1	37.5
Hcb. types.....	57	33	57.8	5	8.7	10	17.5	9	15.7	...	22.2	...	77.7
Par. types.....	43	27	62.7	..	...	..	...	16	37.2	31.2	18.7	6.2	43.7
Kat. types.....	61	11	18	6	9.8	4	6.5	40	65.5	22.5	27.5	25	25
Allied types.....	11	3	27.2	1	9	..	...	7	63.6	28.5	...	28.5	42.8

GROUP 2—MANIC DEPRESSIVE.

Types—	No.	Continued—		Recurrent—		Dead—		Recovered—		1-100	100-200	200-300	300+
		No.	%	No.	%	No.	%	No.	%				
All types.....	196	36	18.3	15	7.6	5	2.5	140	71.4	37.1	37.1	12.1	13.5
Manic.....	67	8	11.9	5	7.4	..	...	54	80.5	50	35.1	7.4	7.4
Depressed.....	75	12	16	4	5.3	2	2.6	57	76	24.5	42.1	14	19.2
Mixed.....	32	11	34.3	4	12.4	2	6.2	15	46.8	20	33.3	26.6	20
Allied.....	17	4	23.5	1	5.8	1	5.8	11	64.7	63.6	27.2	...	9
Symptomatic.....	5	1	20	1	20	..	...	3	60	33.3	33.3	33.3	...

GROUP 3—TOXIC PSYCHOSES, INCLUDING INFECTIVE EXHAUSTIVE.

Types—	No.	Continued—		Recurrent—		Dead—		Recovered—		1-100	100-200	200-300	300+
		No.	%	No.	%	No.	%	No.	%				
All types.....	82	12	14.6	4	4.8	3	3.6	62	75.6	61.9	20.6	6.3	11.1
Alc. Deler.....	14	..	...	..	...	..	...	14	100	92.8	7.1	...	...
Alc. Hal.....	31	1	3.2	1	3.2	..	...	29	93.5	55.1	34.4	...	10.3
Chr. Alc.....	16	9	56.2	1	6.2	..	...	6	37.5	...	...	50	50
Alc. Par.....	2	..	...	1	50	..	...	1	50	...	...	...	100
Morphine.....	6	..	...	1	16.6	..	...	5	83.3	100	...	...	...
Inf. Exh.....	13	2	15.2	1	7.6	3	22.8	7	53.8	71.4	14.2	14.2	...

GROUP 4.

Types—	No.	Continued—		Recurrent—		Dead—		Recovered—		1-100	100-200	200-300	300+
		No.	%	No.	%	No.	%	No.	%				
Par. St.....	16	10	62.5	..	...	..	...	6	37.5	66.6	33.3	...	...
Psycho Neuros.....	20	1	5	..	...	1	5	18	90	50	22.2	22.2	5.5
Invol. Melan.....	22	5	22.2	1	4.5	2	9	14	63.6	...	14.2	7.1	78.5

Group 1 shows a higher percentage of recoveries than was anticipated, but it must be remembered that it also will contain the largest number of those clinically unrecovered cases which are here classed as social and economic recoveries.

Based upon annual admissions, the per cent

their home and employment either clinically recovered or improved has been appreciably increased.

2. The length of hospital residence has been shortened in some cases.

3. The comfort of the patient while in residence has been increased.

ILLINOIS MEDICAL JOURNAL

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JULY, 1914.

Editorials

MEETING OF ALIENISTS AND NEUROLOGISTS.

The Chicago Medical Society again invites the medical profession of the state to attend the third annual meeting of Alienists and Neurologists, to be held in Chicago July 13 to 18, inclusive, at the La Salle Hotel.

These meetings, under the efficient guidance of Dr. Mefford, have grown to national importance. Of so much importance have they become that the governors of twenty-five states have designated representatives to attend and take part in them. The program already shows a list of sixty-five papers, taking up every phase of mental degeneracy.

Considerable time will be given to the influence of syphilis and alcoholism as causative factors in degeneracy.

It is expected to have some new demonstrations of spirochetæ, many never before shown or demonstrated.

Perhaps the most interesting demonstration will be the showing of Abderhalden's serum test for dementia precox.

No series of medical meetings have ever been held in the country that have excited so much interest or have been more far-reaching in their influence for good as these, and they are getting better every year.

Every physician, every humanitarian, every social worker interested in the cause, cure and prevention of insanity, feeble-mindedness, crime, or other forms of mental degeneracy is invited to attend.

In addition to the scientific papers read, there will be clinics in the psychopathic department of the County Hospital. All the post-graduate schools in the city have united in extending a welcome to all visiting physicians to visit their clinics and demonstrations.

Read the program and come. See page 59.

CHICAGO MEDICAL SOCIETY ELECTION.

The Chicago Medical Society at the election June 16 honored Dr. Chas. J. Whalen with the presidency by a majority of 231. Two principal factors aside from Dr. Whalen's great personal popularity determined the result of the contest. The profession of Chicago, as elsewhere, have come to realize that a medical society has many duties outside the provision of scientific programs for the discussion of its members.

Vicious legislation affecting the practice of medicine in the interests of quacks and pathies is constantly coming up in the various legislative bodies. The conditions of practice are deplorable in many states and countries where such legislation was not opposed by a united profession led by men able and willing to give their time and abilities in unstinted measure.

Dr. Whalen, as a member of the Public Relations Committee for seven years and as president of the Illinois State Medical Society the past year, has devoted himself to the interests of the profession both as an organizer and as the first defense against legislative iniquities. His election simply records this verdict of the membership. Another factor in the result was the fact that the forces of the American College of Surgeons rallied to the standard of Dr. Mix and thereby gave the society a chance to rebuke the promoters of that organization.

TUBERCULOSIS NOTES

Tuberculosis is still undefeated by any one remedy.

"Chronic bronchitis" in the aged should be examined for the tubercle bacilli, and you will probably be surprised to find them open cases of tuberculosis. A patient with tuberculosis will not get well on a diagnosis of "bronchitis" or "chronic cold." Disregard the pleadings of the family and tell your patient the real truth. He may surprise every one by getting well.

A hemorrhage is oftentimes best stopped by magnesium sulphate depletion.

Avoid cough remedies, except where cough is a distressing symptom.

If you wish to keep your patient's stomach in good condition, avoid cod-liver oil. He needs his stomach to get well.

If diagnosis not positive, the x-ray may show infiltration or consolidation if present.

Many cases of pulmonary tuberculosis undoubtedly are secondary to glandular tuberculosis. Probably 90 per cent of children are infected with the tubercle bacilli, mostly in the glandular system.

Immunization with living tubercle bacilli has been successfully done. Proved by continuous negative Von Pirquet.

Anti-spitting laws, if enforced, save lives.

In tuberculosis treat the patient and not the case.

Collapse of the lung in one form or another has now its inning, and has, according to reports, made a home-run.

Lymphocytes are probably the only body cells able to dissolve the waxy covering of the tubercle bacilli. This waxy coat is what makes the germ practically invulnerable to present remedies.

Tubercle bacilli have been found in the sweat in about 33 per cent of cases. Unequal pupils, not caused by a pathological condition of the eye, is an early sign in pulmonary tuberculosis. Dilation may be on either side.

Patients with the bacilli in the blood do not do so well as those without.

Tuberculosis is a dwelling-house disease.

Arrested cases discharged from state, county, or city sanatorium should be given preference, if sputum is free of germs, in licenses for pushcart and newsstands.

A MEDICO-ECONOMIC LEAGUE FOR ILLINOIS.

Serious economic conditions in the Medical profession are responsible for the Physicians' Economic Club of Illinois which originated in the Aux Plaines Branch of the Chicago Medical Society.

It already has sixty members and is growing at rapid strides. In the short time it has been in existence there has been discussed such important subjects as the income tax—employers' compensation act—(as they affect the medical man) and many other economic subjects of interest to the profession.

The aim of the organization is to formulate plans for better economic conditions; to promote the common interest of practitioners; to enlighten the membership as to their rights, privileges and power for safeguarding their vital interests.

The organization publishes a monthly bulletin called the "Physicians' Economist."

The move is in line with what is transpiring in other parts of the world, for instance: In New York there are eleven medical economic societies, now merged into the Greater New York Medical Societies Economic League. Again we have the American Society of Medical Economics designed to take in the whole country. In the old world there has recently been formed the German Practitioners' Association for economic reasons.

In Great Britain the British Medical Association has taken up the subject of economics in earnest; in fact, in nearly every country earnest effort is being made to unite the profession for economic as well as scientific reasons.

So many factors are working against the interests of doctors that it is time that medical men become aroused from their state of lethargy. It is high time that the physicians of Illinois recognize the necessity of protection. This end can be most easily secured by joining and helping to promote an organization like the Physicians' Economic Club of Illinois, an organization composed of the best element of the profession in the vicinity where it originated.

PHYSICIANS' ECONOMIC LEAGUE OF ILLINOIS,

F. L. Glenn, M. D., President,

533 N. Pine Ave., Chicago.

J. T. Woof, M. D., Vice-President,
5644 Madison St., Chicago.
E. F. Winterberger, M. D., Secretary,
5538 W. Chicago Ave., Chicago.

DR. NILES THEODORE QUALES.

The medical staff of the Norwegian Lutheran Deaconess Home and Hospital, at its regular monthly meeting held June 8, 1914, passed unanimously the following resolutions regarding the death of Dr. Niles Theodore Qualess on the 23rd of May, 1914:

It is with profound regret that we, the members of the medical staff at the Norwegian Lutheran Deaconess Home and Hospital, record the passing of Dr. N. T. Qualess, therefore be it

Resolved, That we pay this public tribute to the memory of our nestor and distinguished friend, so highly esteemed for the conscientious discharge of duty, both to this hospital and to his fellow members of its staff. Dr. Qualess was the organizer of this staff and for many years its president and its most active attending physician until infirmity forced him to withdraw from active work. As such he won the love, admiration and esteem of everyone for the impartial and efficient manner in which he built up the working and harmonious organization here. His generosity was indeed great, and few gave more without hope of financial reward. Burdened as he was with other public duties his great sympathy and kindness to his patients and to fellow physicians was characteristic of the man. His career may serve as an example of altruism, kindness, devotion to principle and self-denial for the welfare of others, and his death will cause a vacancy in the ranks of those who stand for the higher professional ethics; be it further

Resolved, That we hereby with deep sorrow convey our sympathy to the members of his family and to his relatives in their great affliction and that these resolutions be published in our city papers and in the ILLINOIS MEDICAL JOURNAL, and a copy be recorded in the minutes of this Staff.

SVENNING DAHL,
E. E. HENDERSON,
A. B. OYEN.

TO DOCTOR JULIA DYER MERRILL.
1861-1914.

IN MEMORIAM.

ARTHUR M. CORWIN, A. M., M. D.,
CHICAGO.

A noble soul
Has quit its home of half a century.
No cannon booms farewell,
No muffled drum throbs out its grief
In solemn requiem
With reed and horn,
No sorrowing flag, half mast,
Flings wide the news
That she has passed.

Unknown to titled place,
To florid fame and tinsel honor less,
Her spirit, simple in its outward dress,
Yet queenly in its native grace
Craved but a modest role.

To seek, to know, to serve,
Her master passions, ever led her forth,
By day, by night;
A mighty task she wrought
Though played in humble part,—
Into the lasting pattern of her time
She wove the golden fibers
Of her mind and heart.

Joyous of life,
Yet jealous of the limitations
Set by mortal bonds,
Her restless spirit
Drove that frail frame on to do its will—
Its durance broke.

And so we lay away
With tender, loving care,
The earthly mould,
No longer fit,—
But bless the memory of that character
Which glorified the house
By living there.

May 30th, 1914.
25 E. Washington Street.

Correspondence

NOTICE.

Chicago, June 10, 1914.

To the Editor: At a meeting of the executive branch of the Medico-Legal Committee, it was determined that the general counsel should take a more active part in the assistance of Medico-Legal defenses throughout the state, with a view to assisting physicians and attorneys in counties other than Cook County.

This has apparently not been done in any systematic way heretofore and I have no records from which I can learn the title and status of pending suits in other counties.

It was the sense of the committee that you be requested to insert in the Journal a notice calling on the chairmen in the various districts to report all pending suits for malpractice, the names of the attorneys in charge, and a brief outline of the nature of the claims, accompanied if possible by copies of the pleadings.

It will, perhaps, save time to have these communications sent direct to me, as I have been placed in charge of all the files.

Accept my thanks for your attention to the matter.

Yours respectfully,

R. J. FOLONIE.

112 W. Adams Street.

BEWARE THIS FAKIR!

Carlyle, Ill., June 16, 1914.

To the Editor:

A woman calling herself Hulda De Muth from the Hulda De Muth Psychological Healing Institute, Beloit, Wis., advertised herself largely in the two weekly Carlyle, Ill., papers as a person with a Devine Gift for healing. She claimed this power came from above, etc., and had the usual testimonials. Her work was largely one of love. She was on a vacation trip and it was particularly fortunate for the people of Carlyle that she had arranged to stop and would heal all the sick and afflicted "free."

usual class of blind, crippled, aged and infirm come to grasp at the straws of her free it was never, instead of being relieved

At this time the Society and the State Medical Society got busy. A

"healthy" patient consulted her, was examined, paid the fee and was to receive absent treatment for 3 months. This patient then had her arrested for practicing medicine without a license. This case was later compromised by the woman paying the costs and agreeing to remain out of the county. If this woman appears elsewhere in the state, she should be arrested. Her confession in Clinton county will convict her.

Signed, J. Q. Roane.

THE DOCTOR'S DREAM

Last evening I was talking to a doctor aged and gray,
Who told me of a dream he had—I think 'twas Christmas day.

While snoozing in his office the vision came to view.
For he saw an angel enter dressed in garments white and new.

Said the angel: "I'm from heaven, the Lord just sent me down

To bring you up to glory and put on your golden crown.

You've been a friend to everyone and worked hard night and day.

You have supported thousands and from few received your pay;

So we want you up in Glory, for you have labored hard,

And the good Lord is preparing your eternal just reward.

Then the doctor and the angel started up toward Glory's gate,

But, when passing close to Hades, the angel murmured: "Wait!

I have a place to show you, it's the hottest place in h——

Where the ones who never paid you in the torment always dwell."

And behold the doctor saw there his old patrons by the score,

And, grabbing up a chair and fan, he wished for nothing more;

But was bound to sit and watch them as they sizzle, singe and burn

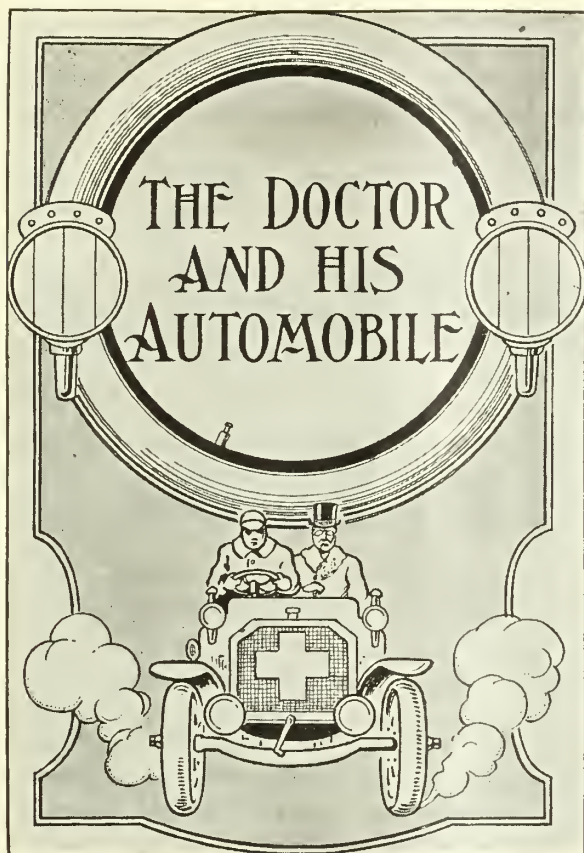
And his eyes would rest on debtors, which ever way they'd turn.

Said the angel: "Come on, doctor, there's the pearly gates to see."

But the doctor only muttered: "This is heaven enough for me."

—From The Madison County Doctor.

Some people seem to think that alleys are maintained as places where they may indiscriminately deposit their wastes and filth. Get that notion out of your head.



Courtesy of American Medicine.

Auto Sparks and Kicks

BENZOL AND PARAFFIN AS AUXILIARY FUELS

In hot weather both paraffin and benzol can be used with ease in conjunction with gasoline. Benzol, in particular, makes an excellent mixture in the proportion of about half and half. It can be obtained at numerous motor-spirit depots at the present time. Taxibus spirit is also more comfortably used when the atmosphere is dry and hot than in cold, damp weather. If motorists in general would only give up insisting on the use of the most refined kinds of motor spirit, their pockets would gain in more ways than one. There is a much larger proportionate supply of motor spirit of specific gravities between .750 and .800 than would ordinarily be supposed. But a prejudice still exists against the heavier form of spirit, shared alike by master and man. More air must be used with heavier grades and the engine run at a warmer temper-

ature, but otherwise any ordinary carbureter will vaporize spirit between .750 and .800 as satisfactorily as it will vaporize the lighter kinds.—*From The Car.*

DRIVING HINT.

Be very watchful on hills for large stones, which are often used by drivers of trucks and other heavy vehicles for holding their vehicles, when they are forced to halt on the incline and which are never removed by them when they start on up the hill. A jolt over one of these small boulders may very easily result in a broken spring or the beginning of a blow-out if it does not have serious results.

IN CASE OF EMERGENCY.

If you run short of gasoline in a locality where the supply cannot be replenished easily, you can often get home without difficulty by mixing ordinary stove naphtha or even kerosene with the fuel remaining in your tank. Of course, the carbureter will need adjustment and the main thing to remember is to keep the engine running constantly and keep it hot, so as to vaporize the mixture readily. Extreme care should, of course, be taken when filling the gasoline tank, and the poorer grade of kerosene or gasoline, if used, should be well strained.

USING ACETYLENE BURNERS IN KEROSENE LAMPS.

When changing oil burning lamps to burn acetylene gas and providing them with one of the many equipments now upon the market for this purpose, care should be taken to place the burner as low as possible within the lamp. Acetylene gas creates much more heat than does kerosene oil, and if this precaution is not taken, damage is likely to occur to the top of the lamp.

TO SECURE SOFT RIDING.

Of course automobile tires should be pumped up to standard pressure in order to get maximum service from them, but when for any reason it is very desirable to secure soft, easy riding, as for a person that is sick or has been injured, half pumped tires will give the needed effect. Mileage will not be correctly recorded with soft pumped tires, however, as the diameter of the wheel is reduced.

Illinois State Medical Society

OFFICIAL MINUTES OF THE SIXTY-FOURTH ANNUAL MEETING OF THE ILLINOIS STATE MEDICAL SOCIETY,
HELD AT DECATUR
MAY 19-21, 1914.

GENERAL SESSION.

MAY 19, 1914, AFTERNOON.

The General Session was called to order by the president, Dr. Charles J. Whalen, at 2:30 p. m.

The president announced the first order of business the report of the Committee on Arrangements.

This report was read by Dr. Everett J. Brown, chairman.

The president then named the Committee on Credentials consisting of the following: Dr. Wilbur H. Gilmore, Mt. Vernon; Dr. N. C. Nelson, Chicago; Dr. J. C. Stubbs, Chicago; Dr. F. A. Buckmaster, Effingham; Dr. A. T. Wilhelmy, Decatur.

The meeting was then turned over to the Secretaries Conference.

SECRETARIES CONFERENCE.

Dr. H. F. Bennett, Litchfield, president of the Conference, presided and called the conference to order at 3 p. m.

Minutes of the preceding meeting was read by Dr. T. D. Cantrell, secretary. There being no objection the minutes were declared approved as read.

Dr. Charles J. Whalen, Chicago, then read a paper on "The Needs and Purposes of the State Society."

This was followed by the paper of Dr. Charles W. Carter, Clinton, entitled "A. Booster's Sermon."

Dr. W. Oliver, Peoria, being absent, Dr. Edmonson made a few remarks.

Dr. H. C. Blankmeyer, Springfield, read a paper on "Hobbies."

Dr. Bennett then appointed a nominating committee composed of Drs. E. E. Whiteside, Andy Hall and H. C. Blankmeyer.

The papers read before the Conference were then discussed by Drs. W. H. Gilmore, Mt. Vernon, E. E. Barr, Taylorville, T. D. Cantrell, Clinton, H. D. Ryman, Mt. Pulaski, Elizabeth

Ball, Quincy, and discussion was closed by Drs. Whalen and Carter.

The chairman then asked for the report of the nominating committee, which was presented as follows: Dr. F. H. Bennett, Litchfield, for president; Dr. Elizabeth Ball, Quincy, for vice-president; Dr. C. W. Carter, Clinton, for secretary.

Dr. Barr moved that the report of the committee be accepted and that the secretary be instructed to cast the ballot of the meeting for the nominees.

Seconded by Dr. T. D. Cantrell and carried. The secretary then announced the unanimous vote of the conference for the nominees.

The meeting adjourned on motion at 4:20 p. m.

SECTIONS ONE AND TWO.

MAY 20, 1914, MORNING SESSION.

Meeting called to order at 9:00 a. m. by Dr. George Parker, Peoria, chairman Section One, who announced the first paper of the scientific program, "Vaccine Treatment of Hay Fever." This was read by the author, Dr. Karl K. Koessler, Chicago, and discussed by Dr. Frank J. Smithies, of Chicago, and Dr. C. G. Grulee, of Chicago, Dr. Koessler closing the discussion.

Dr. Joseph M. Patton, of Chicago, followed with a paper on "The Relation of Precordial Pain to Heart Disease," which was discussed by Dr. Sumner N. Miller, of Peoria, Dr. S. Oren, of Lewistown, Dr. Frank Billings, of Chicago, and Dr. Charles L. Mix, of Chicago. Dr. Patton closed the discussion.

At this point the chair was taken by Dr. Frederick A. Besley, of Chicago, chairman of Section Two, who announced the third paper of the program, "Eleven Years Report of the Treatment of Appendicitis by the Ochsner Method," by Dr. J. B. Bacon, of Macomb. This paper was read by the author. Discussion by Dr. John D. Robertson, of Chicago; Dr. John N. Nelms, of Taylorville; Dr. Daniel N. Eisendrath, of Chicago; Dr. John B. Murphy, of Chicago; Dr. Bacon (in answer to questions). The chairman then requesting the postponement of discussion on this paper in order that the General Session might adjourn to the high school auditorium where papers with lantern slide demonstrations would be presented.

The session accordingly adjourned as indi-

cated, and the program was proceeded with, Dr. Daniel N. Eisendrath, of Chicago, reading a paper on "Tuberculosis of Kidney," with lantern slide demonstration. This paper was discussed by Dr. John B. Murphy, of Chicago; Dr. Frank Billings, of Chicago, and Dr. J. B. Haeberlin, of Chicago.

Dr. J. F. Percy, of Galesburg, then read a paper on "The Technic of Applying Heat in the Treatment of Inoperable Carcinoma of the Uterus," illustrated with lantern slides. There was no discussion on this paper.

Dr. Carl E. Black, of Jacksonville, followed with a paper on "Displacements of the Colon," which was discussed by Dr. George Kreider, of Springfield, and Dr. J. R. Pennington, of Chicago. Lantern slides.

The session then adjourned, at 12:40 p. m.
SECTION ON EYE, EAR, NOSE AND THROAT.

CLINIC ON EYE, EAR, NOSE AND THROAT, MAY 19, 1914, 2 P. M., AT ST. MARY'S HOSPITAL.

Dr. Joseph C. Beck, Chicago, removed left tonsil, retracting the palate by means of catheter through the nose.

Dr. H. R. Boettcher, Chicago, removed right tonsil and adenoids. He then did a radical mastoid operation with the burr.

Dr. Harry Woodruff, Joliet, operated on a cataract of the left eye and also demonstrated a tucking operation for strabismus.

May 20, 1914, Morning Session.

Dr. Harry Woodruff, Joliet, called the meeting to order.

Dr. Norval H. Pierce, Chicago, read a paper on "Preservation of the Antral Capsule in Operation in Uncomplicated Acute Mastoid Suppuration." (With plate illustrations.) This paper was discussed by Dr. Boettcher, of Chicago, Dr. Richards and in closing by Dr. Pierce.

Dr. Joseph C. Beck, Chicago, then presented "Cases Illustrative of the Interdependence of Oto-Laryngology, Rhinology and Dentistry," the paper being discussed by Dr. I. A. Porges and Dr. A. M. Corwin, both of Chicago. Dr. W. A. Fisher, Chicago, read a paper on "Treatment of Senile Cataract." Dr. W. L. Noble, Chicago, then read a paper on "The Cataract Operation—Advantages and Disadvantages as Practiced by

Col. Henry Smith of India." Dr. Watson W. Gailey, Bloomington, read a paper on "Indian Operation for Cataract." All these papers were discussed by Drs. Gray, Clark, Fisher, Noble and Faith.

Dr. J. A. Cavanaugh, Chicago, then read a paper on "Laryngeal Topography." Dr. Otto T. Freer, Chicago, presented a paper on "Removal of Tonsil by Knife Dissection." Dr. C. F. Burkhardt, Effingham, read a paper on "The Function of the Faucial Tonsils and Indications for Their Removal." Dr. George E. Shambaugh, Chicago, then presented "The Recognition of Chronically Infected Faucial Tonsils." These papers were discussed together by Drs. Corwin, Beck, Welton, Thomas, Goodell, Boettcher and Burkhardt.

Report of Nominating Committee.

We feel that the secretary, Dr. C. B. Welton, Peoria, has done effective work the past year and nominate him for chairman. For secretary, we nominate Dr. Joseph C. Beck, of Chicago. We hope by this precedent, if the secretary is nominated from down state and next year from Chicago, that there will be no question as to the equal division of the spoils.

On motion duly seconded the chairman declared the nominees elected.

MAY 20, 1914, AFTERNOON SESSION.

Presiding, Dr. Harry Woodruff, Joliet, chairman of the section.

Dr. J. C. Fisher, Decatur, read a paper entitled "Heredity with Reference to the Eye and Ear," which was discussed by Dr. E. E. Edmonson, of Mount Vernon; Dr. A. L. Adams, of Jacksonville, and Dr. Fisher in closing.

This was followed by the paper of Dr. J. Whitefield Smith, of Bloomington, on "Does Ophthalmic Science in the United States Demand an Endowed School of Refraction," which was read by the author and discussed by Dr. A. L. Adams, of Jacksonville, Dr. R. J. Tivnen, of Chicago, and Dr. Smith in closing. Dr. Tivnen moved that a committee be appointed by the chairman to study the question of refraction in all its phases, educative, legislative and otherwise, this committee to report at the next session of the Society. Motion was seconded and carried.

Dr. F. W. Kettlestrings and Dr. Francis Lane, of Chicago, followed with a paper on "Meta-

static Carcinoma of the Choroid." This paper was discussed by Dr. H. S. Gradle, of Chicago, and Dr. R. J. Tivnen, of Chicago, Dr. Kettlestrings closing the discussion.

A paper on "The Prognosis in Squint" was then read by Dr. Thomas Faith, of Chicago, followed at once by the paper of Dr. W. R. Fringer, of Rockford, on "The Importance of the Early Treatment of Strabismus in Infants." These two papers were discussed by Dr. J. Sheldon Clark, of Freeport; Dr. Oliver Tydings, of Chicago, and Dr. Emory Hill, of Chicago, Dr. Fringer and Dr. Faith closing the discussion.

The next paper was entitled "The West Intranasal Resection of the Tear Sac for Dacryocystitis, Phlegmon or Stenosis," and was read by the author, Dr. J. Sheldon Clark, of Freeport. Discussions by Dr. H. S. Gradle, of Chicago; Dr. Harry Woodruff, of Joliet; Dr. Clark completing the reading of his paper on the time given for closing discussion.

Dr. Emory Hill, of Chicago, followed with a paper on "Report of a Case of Hypophyseal Tumor," which was discussed by Dr. J. Holinger, of Chicago, and Dr. Hill in closing.

The chairman then announced that the paper of Dr. A. L. Adams, of Jacksonville, on "Statistics at the School for the Blind at Jacksonville," and the paper of Dr. T. A. Woodruff, of Chicago, on "Conservation of Vision," having been read at the public meeting given on the previous evening, would be omitted, and announced the last paper of the program, "Indications for Operative Interference in Glaucoma," read by the author, Dr. H. S. Gradle, of Chicago, and discussed by Dr. Horace Mann Starkey, of Rockford; Dr. Thomas Faith, of Chicago; Dr. Charles D. Thomas, of Peoria; Dr. Clarence E. McClelland, of Decatur; Dr. C. B. Welton, of Peoria; Dr. E. E. Edmonson, of Mount Vernon; Dr. Harry Woodruff, of Joliet, and Dr. Gradle in closing.

GENERAL SESSION.

MAY 21, MORNING SESSION.

Session called to order at 9:00 a. m. by Dr. E. M. Sala, of Rock Island, secretary of Section Two, who announced that the session would proceed with the postponed discussion of the paper of Dr. Bacon which was read on the preceding day. Discussions of this paper by Dr. William Fuller, of Chicago; Dr. A. Belcham Keyes, of

Chicago; Dr. Bennett, of Chicago; Dr. J. B. Haeblerlin, Chicago; Dr. Bertha Van Hoosen, of Chicago; Dr. Albert M. Wickstrom, Chicago; Dr. J. L. Wiggins, East St. Louis; Dr. Samuel Oren, Lewistown, and Dr. Frederick A. Besley, Chicago. The discussion was closed by Dr. Bacon.

Dr. Frederick A. Besley, Chicago, chairman Section Two, took the chair.

The chairman announced that the nominating committee would consist of Dr. Miller, Dr. George Kreider, and Dr. Arthur E. Beifeld.

The paper of Dr. Marvin H. Smith, of Sherard, on "Imperforate Anus with Report of Cases," was read by abstract by Dr. E. M. Sala, at the request of the chairman.

The paper on "Cerebral Edema (Wet Brain) in Chronic Alcoholism," by Drs. Arthur E. Beifeld and C. E. Seeleth, of Chicago, was then read by Dr. Beifeld. Discussed by Dr. Frank P. Norbury, Springfield; Dr. Frederick A. Besley, Chicago; Dr. E. M. Sala, of Rock Island, and Dr. Beifeld in closing.

Dr. Elmer L. Kenyon, Chicago, followed with a paper on "The Stammering Child," discussed by Dr. Frank P. Norbury, Springfield; Dr. Jesse P. Simpson, Palmer; Dr. Benjamin H. Breakstone, Chicago; Dr. Albert M. Wickstrom, Chicago, and Dr. John Franklin Page, Eureka. Dr. Kenyon closed the discussion.

The succeeding paper, on "The Psychoneuroses and Their Treatment," was read by the author, Dr. Frank P. Norbury, of Springfield, and discussed by Dr. John Franklin Page, of Eureka.

Dr. George Parker, Peoria, chairman Section One, presiding, announced that the report of the nominating committee would next be heard.

Dr. Miller, chairman of the committee, spoke as follows:

"After conference on the subject your nominating committee begs leave to submit the following names: Dr. C. V. Collins, of Peoria, as chairman of the Section on Surgery; Dr. Lawrence Ryan, of Chicago, as secretary of the Section on Surgery; Dr. A. C. Croftan, of Chicago, chairman Section on Medicine; Dr. E. W. Fiegenbaum, of Edwardsville, as secretary of the Medical Section."

Dr. J. L. Wiggins, of East St. Louis, moved the adoption of the report and the election of those nominated.

This was objected to, owing to a number of

members being then at the House of Delegates.

Objection ruled out of order.

Dr. S. E. Munson, Springfield, stated that the report of the nominating committee had already been adopted by the House of Delegates.

Motion of Dr. Wiggins' seconded.

Question put by the chairman. Motion carried.

The paper of Dr. R. G. Hoskins, of Chicago, on "The Practical Significance of the Adrenal Glands," was then read by the author, there being no discussion.

The paper of Dr. J. C. Friedman and Dr. W. W. Hamburger, Chicago, on "The Role of the Pylorus in the Etiology, Diagnosis and Treatment of Chronic Gastric Ulcer," was read by Dr. J. C. Friedman. This paper was discussed by Dr. J. B. Haeberlin, of Chicago, Dr. Samuel Edgar Munson, Springfield, and Dr. Friedman, in closing.

This was followed by a demonstration of the Sussman Gastroscope by Dr. A. A. Goldsmith, of Chicago.

The session then adjourned to the high school auditorium.

Dr. C. G. Grulee, Chicago, introduced Dr. J. P. Sedgwick, of Minneapolis, who delivered the "Oration on Medicine," illustrated by lantern slides, the subject being "Roentgenography in the Diagnosis of the Diseases of Children."*

Dr. Elmer L. Kenyon, Chicago, moved that a rising vote of thanks be given Dr. Sedgwick. Motion seconded and carried.

The paper of Dr. Charles M. Jacobs, Chicago, "Bone Transplantation into the Spinous Processes of the Vertebrae for the Cure of Pott's Disease, with Report of Cases," and the paper of Dr. E. A. Fischkin, of Chicago, on "The Dermatoses of Pregnancy," followed, there being no discussion.

Meeting adjourned at 1:00 p. m.

GENERAL SESSION.

MAY 21, 1914, AFTERNOON SESSION.

Meeting called to order by the president, Dr. Charles J. Whalen, at 2:10 p. m.

The president announced the first order of business report of the House of Delegates by Dr. Gilmore, secretary.

Report read by Dr. Gilmore.

Dr. E. M. Sala, Rock Island, moved that re-

port be accepted and placed on file. Seconded and carried.

The president then made the following announcement:

"Miss Harriet Fulmer, of Chicago, of the Visiting Nurses' Association, would like the privilege of this floor for a few minutes and I hope you will grant her this privilege, as it will not detain you more than a moment or two, and this is perhaps the only time when we will have the opportunity."

Dr. W. H. Gilmore moved the privilege of the floor be given Miss Fulmer. Seconded and carried.

Miss Fulmer then addressed the session.

Dr. Gilmore then made the following statement:

"Just before the announcements are made I wish to make a little statement to this general meeting. The opinion seems to be abroad that the House of Delegates do the nominating and the electing of the section officers. Now, I wish to make a statement. They do not have anything to do with the nomination or the election of any section officers. Section officers are nominated and elected in their own section. The only action that the House of Delegates takes in the matter is to ratify these nominations and elections, which must be done according to the by-laws. I make this statement because the impression is abroad this morning that the House of Delegates are nominating whom they please and that it is not done before the sections. That is not true. The nominating committee nominate the officers; they are nominated by you."

The president then stated that the session would proceed to the induction into office of the new president, whom he introduced as follows:

"Ladies and Gentlemen: It is my pleasure to introduce to you Dr. Albert L. Brittin, who becomes the presiding officer of this organization for the coming year. He needs no introduction. He is known, perhaps, to every physician in the state of Illinois, not only for his high standing professionally, but for his geniality as well. Dr. Brittin, I am turning over to you the gavel that has been used very successfully in all years previous to the last, and I hope that you will improve upon the conditions of the last twelve months."

*Published in the JOURNAL, June, 1914, page 363.

Dr. Brittin responded: "I thank you very kindly, Mr. Retiring President, and say to you now that I feel that it will be impossible for me to use it to any better effect than it has been used in the last twelve months."

Dr. Brittin then read an address.*

Dr. Whalen announced that the session would now proceed to the completion of the scientific program.

Dr. E. M. Sala, secretary Section Two, as presiding officer, announced the first paper on "Personal and Clinical Experience with Milk Sickness," by Dr. Arthur J. Clay, Hoopston. This paper was read by the author and discussed by Dr. A. A. Goldsmith, of Chicago, and Dr. Noah D. Myers, of Decatur.

Dr. Irvin S. Koll, Chicago, followed with a paper entitled: "Two Hundred Cases of Acute Gonorrheal Urethritis Without a Complication." This paper was discussed by Dr. A. E. Wilhelmy, of Decatur; Dr. Henry Clay Fairbrother, East St. Louis, and Dr. Koll in closing.

The paper of Dr. Dow W. Deal, of Springfield, on "Axillary Arterio Venous Anastomosis with Report of Cases," was then read by the author. No discussion.

Dr. Frank E. Simpson, of Chicago, followed with a paper on "Radium, Its Use and Limitations in Skin Diseases." No discussion.

The paper of Dr. J. W. Pettit, Ottawa, on "Present Status of the Treatment of Tuberculosis," was read by title.

The paper of Dr. Evlan Sargent, Chicago, on "My Experience with Intravenous Injection of Neosalvarsan," and the paper of Dr. B. C. Corbus, Chicago, on "Further Advances in our Study of Syphilis," were read by abstract.

The Society adjourned on motion at the completion of the program, at 3:40 p. m.

HOUSE OF DELEGATES

MINUTES OF FIRST MEETING.

TUESDAY, MAY 19, 1914, 8 P. M.

The secretary read the report of the committee on credentials. He also read a list from Cook county that were not present. The delegates were then given their badges.

The minutes of the last meeting were read by the secretary.

President Whalen: What is your pleasure? It has been the custom to pass them as published in the JOURNAL. What is your pleasure?

Motion made and seconded that they be passed as published in the JOURNAL. Carried.

The secretary then read his report.

SECRETARY'S REPORT.

Gentlemen of the House of Delegates:

Your secretary begs to report the collection of the following amounts from all sources, from June 1, 1913, to May 1, 1914:

County.	Amt.	County.	Amt.
Adams	\$ 68.00	Macoupin	74.00
Alexander	44.00	Madison	194.00
Bond	4.00	Marion	108.00
Boone	44.00	Marshall-Pulnam	24.50
Bureau	82.00	Mason	8.00
Calhoun	12.00	Massac	60.00
Carroll	60.00	McDonough	58.00
Cass	70.00	McHenry	86.00
Champaign	162.00	McLean	398.00
Christian	74.00	Menard	30.00
Clark	47.50	Mercer	32.00
Clay	44.00	Monroe	25.00
Clinton	33.00	Montgomery	70.00
Coles	64.00	Morgan	164.00
Cook	4,500.00	Moultrie	12.00
Crawford	48.00	Ogle	33.50
Cumberland	14.00	Peoria	227.00
DeKalb	70.00	Perry	32.00
DeWitt	30.00	Piatt	24.00
Douglas	4.00	Pope	8.00
Edgar	30.00	Pulaski	37.00
Effingham	64.00	Randolph	40.50
Fayette	36.00	Richland	36.00
Franklin	33.50	Rock Island	174.00
Fulton	126.00	Saline	2.00
Gallatin	32.00	Sangamon	242.00
Greene	102.00	Schuyler	24.00
Grundy	34.00	Scott	16.00
Hamilton	42.00	Shelby	28.00
Hancock	46.00	Stark	14.00
Hardin	5.50	St. Clair	265.50
Henderson	24.00	Stephenson	83.50
Henry	78.00	Tazewell	60.00
Iroquois-Ford	138.00	Union	16.00
Jackson	58.00	Vermillion	86.00
Jasper	30.00	Wabash	18.00
Jefferson	86.00	Warren	66.00
Jersey	18.00	Washington	40.00
Johnson	6.00	Wayne	44.00
Kane	245.00	Whiteside	76.50
Kankakee	14.00	Will	94.00
Knox	102.00	Williamson	138.00
Lake	98.00	Winnebago	46.00
LaSalle	181.00	Woodford	46.00
Lawrence	20.50	Subscriptions	22.40
Lee	62.00	Exhibit Space	755.00
Livingston	68.00		
Logan	78.00		
Macon	144.00	Total	\$11,725.48

For the eleven months, from June 1, 1913, to and including April 30, 1914, 134 voucher checks were drawn for the total amount of \$14,207.60. Of this amount \$4,169.91 was for Medical Defense and \$10,037.69 for the JOURNAL and general expenses. Of the amount expended for medical defense \$2,355.91 did not belong to this administration but were old bills which should have been presented and paid by the previous council.

When Charles J. Whalen assumed the office of President of the Illinois State Medical Society he announced that his administration would be a business one and that the campaign for new members started in 1913 would be pushed diligently. Hence the efforts of the Secretary's office have been largely along this line.

Early in July, 1914, a list of the physicians of the

*Published in the Journal June, 1914, page 404.

state, as furnished by the State Board of Health was checked with the roster of the society and the president addressed a letter to every non-member setting forth the advantages of Medical Organization and requesting that he make application for membership in his local society at once.

On September 1, this list was again checked with the official records and with the mailing list. At this time we found 248 members of the society who were in arrears for 1912 and were still receiving the JOURNAL. On request of the president these names were dropped from the roll and each of them received a personal letter from Dr. Whalen, advising them that they were no longer members of the state society and inviting them to again become allied with the organization. This letter created quite a storm in several counties and many men were found who had paid their dues but had not been given proper credit either in their local society or the state society. One entire county was dropped, their assessment for 1912 having been lost in the mail. As rapidly as answers were received to this communication the secretary wrote personal letters to the writers stating the facts.

In October another circular letter signed by the legislative committee was addressed to all physicians in the state who were not already members, again urging them to make application to their county societies for membership. This letter created some misunderstanding as in addressing names from so large a list, errors are bound to enter, and many men received this communication who were already in good standing; no larger number, however, than could have been expected under the circumstances.

In this method of securing members it is impossible to avoid inviting men to join the local societies who are not eligible to membership, but the component bodies may accept or reject whomsoever they wish, this fact being thoroughly understood when the above plan was adopted. This plan of increasing the membership is, of course, a radical departure from the accepted one, of each competent society seeking its own members, but actual conditions in Illinois are a far cry from the ideal and some action was necessary other than the ordinary, if any good was to result.

On February 1, 1914, 566 members of the society were found to be in arrears for 1913. The secretaries of the component societies were advised of this fact and a list of the delinquents in each county was sent to the respective secretaries, with the information that all who remained in arrears on March 1 would be dropped from membership. The response to this notice was prompt and 245 paid up before the time set. Your secretary, wishing to give every one a last chance, on March 3 sent a circular letter to the remaining 321 asking them not to allow their membership to lapse and setting March 15 as the final day. Of this number 208 responded, making the net loss 123, these names no longer appearing on the roster of the society. The total membership of the Illinois State Medical Society paid up at least to January 1, 1914, on

May 1 was \$6,093. 1,021 names were added between June 1, 1913 and May 1, 1914; 420 were dropped and 40 lost by death, a net gain of 561, the actual paid up membership on June 1, 1913, having been 5,532.

Every component society in the state is in more or less active condition and range in membership from 5 to 2,550. The interest taken on by many of the smaller societies is remarkable. Counties which have been at least sluggish for several years have awakened to their possibilities and are now holding regular meetings with good attendance and live interest in their scientific programs. There is much yet to be done, however, and the state organization will never be what it should be until all the small societies become live institutions, with some of the ideals and enthusiasm of the larger bodies. There are 45 counties in the state with a membership of less than 25 and it is in these counties that the benefits of medical organization are less appreciated. The petty jealousies so common in small communities must eventually give way to a broader and better view of the abilities of brother practitioners.

The condition of the lecture bureau is perhaps worse than reported by our former secretary at the last annual meeting, there having been less than ten requests for speakers for the entire year.

Your secretary has attended all the meetings of the council, several committee meetings and the conference of state secretaries held in Chicago in February, 1914. In company with the councilor of the 9th district a visit was made to one of the southern counties in an effort to restore harmony in the profession, but it is to be regretted that the attempt was useless.

The conference of state secretaries held with the secretary of the American Medical Association, was attended by men from some 35 states. Your secretary learned at this meeting that the per capita tax of this society is lower than the great majority of the states where medical defense is offered, the per capita ranging from \$2.00 to \$10.00.

At a similar conference held Oct. 23, 1912, a number of regulations were offered, one of which I feel should be brought to your attention.

Should membership expire automatically at the end of the calendar year and a new roster for each county and state society be made up with the beginning of each year? This seems worthy of consideration since the per capita tax in Illinois has been paid any time between Jan. 1 and Dec. 31, with the result that the records of the society are always in a more or less chaotic state.

The following recommendations of the committee were reported on at the meeting this year, and with few exceptions have been adopted by the other states.

"We recommend that constituent state associations adopt provisions making dues in county societies payable Jan. 1 of each year, and requiring county secretaries to report to the state secretaries all members in good standing, together with their per capita assessment for the current year not later than March 31.

State societies desiring to do so may provide a shorter period."

The newness of the duties of this office have been trying to the secretary and he wishes to thank the officers of the component societies for their kindness in promptly forwarding any information that has been desired.

Respectfully submitted,
W. H. GILMORE, Sec'y.

Motion made and seconded that report of Secretary Gilmore be adopted and placed on file. Carried.

Dr. Pence read report of council, as chairman.

REPORT OF CHAIRMAN OF THE COUNCIL.

As chairman of your council, it becomes my official duty to make a report to this House of Delegates relative to the work of the council during the last year.

Since the house of delegates was in session, the council has held five meetings—one immediately after the adjournment of the House of Delegates, at Peoria, May 22, 1913, for the purpose of organization; one June 5, in Chicago; one July 23, in Chicago; one Oct. 22, in Chicago; and one Jan. 21, 1914, in Decatur. The president-elect, on invitation, has, I think, attended every meeting of the council.

At the first meeting of the council the following officers and committees were elected or appointed:

Chairman: Clyde D. Pence.

Medico-Legal Committee: Whalen, Center, Marshall.

Publication Committee: Nelson, Cooley, Center, Gilmore.

Advertising Committee: Pence, Stealy, Arp.

Auditing Committee: Sibley, Burkhardt, Marshall.

Finance Committee: Nelson, Stealy, Whalen.

Dr. Whalen and Dr. Arp were appointed to care for the executive work of the Medico-Legal committee until such time as this house elects a chairman for that committee.

Bonds for the secretary and treasurer were accepted and filed with the chairman of the council.

Your president had planned for a year of activity in the society, and wishing to bring the society up to a maximum, both in efficiency and in number, very much desired an active organization campaign.

It was found that the society was carrying much dead timber—many members not having paid their annual dues, and yet receiving the JOURNAL and other benefits of the society. In one instance the society has not received dues from an entire county for two years.

After the membership list was culled down so that only members paying dues were counted, there remained June 1, 1913, 5,532 members in good standing. This cut down the membership as reported to the society last year very materially.

To again raise our membership larger than it ever had been, an active correspondence campaign was inaugurated. Every county secretary was written and appealed to, to canvass his county and secure the application of all desirable non-members. Other let-

ters, soliciting membership, were sent out to non-members by the Public Relations Committee. A card system was arranged for each councilor district, having the name and address of every non-member in each district, and this card index sent to the councilor for his use. Withal, an active campaign was kept going the greater portion of the year, with the result that we now have paid up in good standing 6,093 members, a net gain of 561. If we consider the number of lapsed memberships and the loss of 40 members by death, we consider this an excellent showing from an organization standpoint.

We have published the JOURNAL as you have seen it from month to month. You have noticed a radical change in the appearance of the JOURNAL. This seemed necessary for several reasons.

1. There was a desire to get a uniform style, and the style selected was that which is used by the JOURNAL of the National Society and many of the other state journals.

2. Economy—The cost of producing this form of journal is considerably less, if a journal of the same size is published. The extra cost of cover and stitching was entirely eliminated.

3. Appearance—Both medical men and printers seem to prefer the new style, and many of the journals are now adopting this standard form.

We think the change has been a good one. At this time, owing to the large volume of printing done by the presses of the A. M. A., it became necessary to have the JOURNAL printed elsewhere. Your council solicited bids, and after canvassing the results, the contract was let to Rogers & Hall, of Chicago, on the following basis:

The estimate provides for composition, paper stock, press work and binding on 6,200 copies, of 112 pages each, running the same amount and style as the July, 1913, issue, at \$447.00 per issue, additional hundred copies, \$3.00 per hundred.

Tagging and mailing, \$1.25 per M. Correcting mailing list, 90c per hour.

Note that the JOURNAL has been enlarged materially.

It is proper at this time to refer to the advertising. It was found by your council that the rates for advertising were far below what they should be, in comparison with that of other journals—circulation being taken into account. After considering the matter, a raise of 50 per cent was ordered by the council, since which time all new contracts have been signed on the basis of the new rate.

The state of the treasury made it imperative that the amount of advertising be increased. On June 1, 1913, the advertising contracts in force called for an annual income of \$3,146.75. At present advertising contracts call for \$8,191.46, a net gain of \$5,044.71. It perhaps is not necessary to mention how extremely difficult is the task of increasing the revenue from this source, nor the amount of time consumed in the work.

FINANCIAL STATEMENT.

The treasurer's report, dated May 16, 1913, read at the last annual meeting, showed a balance of \$5,570.00

in the general fund of the society. This report was written prior to the annual meeting last year, and did not include the expense of that meeting and of the society for several months previous.

At the council meeting held May 20, at Peoria, there were checks written for.....\$5,083.86
At the council meeting held in Chicago, June 5, there were bills presented and paid on account of annual meeting 639.19
Again at the July meeting of the council there were bills presented and paid on account of annual meeting for 1913..... 512.28

Making a total of unpaid bills at the close of the annual meeting\$6,235.33

Or an actual deficit of \$664.65 when the new council was organized.

The annual dues of 1913 had all been previously paid, therefore, leaving no source of revenue for the remainder of the year, except from advertising.

The entire expense of the society during the year, including the \$6,235.33 paid at the last annual meeting, is as follows:

Total items council meeting, May 22, 1913... \$ 5,083.86
Total items council meeting, June 5, 1913... 639.19
Total items council meeting, July 25, 1913... 3,058.79
Total items council meeting, Oct. 22, 1913... 5,027.89
Total items council meeting, Jan. 21, 1914... 4,767.97
Total items council meeting, May 18, 1914... 5,493.65

This includes the expense of this meeting...\$24,071.31

Of this amount, \$5,347.41 comes from the Medical Defense Fund, and of this amount, \$2,255.91 was used to pay bills standing over from last year which should have been presented and paid by the previous council.

By way of comparing the general expense of carrying on the work of the society for different councilor years, the following is taken from the books of the treasurer, general fund:

From Aug. 10, 1912 (when Dr. Markley became treasurer) to June 2, 1913, including all bills up to, and including those of the annual meeting for 1913.....\$16,016.76

From June 2, 1913 to May 19, 1914, up to and including the bills for the annual meeting of 1914 12,488.57

In general the financial condition is rather better than a year ago, the deficit will be some larger, but the insured income from advertising is about 170 per cent greater. There is also an increase of revenue from exhibit space.

The society's activities are greater than ever, and very naturally the expenses of the society must increase somewhat each year.

COST OF THE JOURNAL.

* The actual cost of producing the JOURNAL for the year was \$5,615.72.

Postage\$ 781.30
Editor's Salary 900.00

Assistant Editor's Salary..... 725.00
Office Expense of Ass't Editor..... 75.15

Total.....\$8,097.17

It is impossible to harmonize the statements of the secretary and the treasurer for the reason that the respective statements are made for different periods of time—the treasurer's report covers the period from January to January, while the secretary's report covers from May 1 to May 1. This defect in the by-laws should be remedied by amendment.

As is shown by the statement of the certified accountant employed to audit the books of the society for the past ten years, the per capita cost per member is greater than the per capita income. This certified statement shows a progressive increase of deficit finally amounting to approximately \$26,000. When you know that at present the income per capita is but two dollars, of which one dollar goes to the defense fund, and from which \$1.12 goes to furnish the member with his copy of the *State Journal*, you can readily see that it is imperative to restore the per capita tax to the \$2.50 which existed three years ago, or in spite of the increase of 170 per cent from our advertising, there will soon be no reserve fund, and there will be a permanent deficit for every year to come.

CLYDE D. PENCE,

Chairman of the Council.

TREASURER'S REPORT.

Dr. A. J. Markley, Treasurer, Illinois State Medical Society. From January 1, 1913 to January 1, 1914.

Balance January 1, 1913.....\$4,375.26
Received from Baxter..... 2,421.09
Received from Weis..... 4,415.30
Received from Gilmore..... 1,718.23
Received from Pence..... 949.91
Received from Armour & Co..... 20.00
Received from Chicago Medical Book Co..... 1.50

Total\$13,901.28

Vouchers paid, \$16,222.87.
Account overdrawn Jan. 1, 1914, \$2,320.59.

Dr. A. J. Markley, Treasurer, Medical Legal Defense Fund. From January 1, 1913 to January 1, 1914.

Balance January 1, 1913.....\$ 9,958.93
Received from Weis..... 3,906.00
Received from Gilmore..... 994.25
Received from interest..... 194.79
Received from Moyer..... 547.39

Vouchers paid\$16,601.36
..... 4,237.11

Balance\$11,364.25
Dr. A. J. Markley, Treasurer, Illinois State Medical Society. From January 1, 1914 to May 11, 1914.

Received from Gilmore.....\$4,433.40
Illinois Medical Journal..... 1,875.00

Total\$6,308.40

Vouchers paid 3,150.17
Overdraft January 1, 1914..... 2,320.59

5,470.76

Balance May 11, 1914.....\$837.64

Dr. A. J. Markley, Treasurer, Medical Legal Defense Fund.

Balance January 1, 1914.....\$11,364.25
Received from Gilmore..... 4,414.00

Vouchers paid.....\$15,778.25
..... 1,783.50

Balance May 11, 1914.....\$13,994.75

Next Dr. Pence reads report of District No. 3. He also read Dr. Nelson's report of the 5th District.

COUNCILOR'S REPORTS.

REPORT FOR DISTRICT NO. 3.

The component societies of the district are in a flourishing condition, generally speaking. Most of them have increased both their activities and membership.

The several component branch societies of Cook county have all been active this year, and a new one has been organized. The membership for Cook county on Dec. 31, 1913, was 2,446. At present it is approximately 2,600.

Lake county has been doing good work, and during the year 3 new members were added, and 3 restored to membership; 3 members having moved from the county, the membership is only 3 greater than last year.

Kankakee county society has lost a few in number; 3 have moved outside of the county, one death, and six delinquents; 2 new members were added during the year.

The report from Will county does not show up quite so well. It has added 3 new members to the 58 which it had a year ago, but 28 of these are not paid up for the current year. However, we hope to have them all in good standing soon.

CLYDE D. PENCE,
Council on District No. 3.

FIFTH DISTRICT.

To the Chairman and Gentlemen of the Council:

In submitting my first report as Councilor of the Fifth District, it gives me pleasure to say, that judging from the reports received from the different counties, never before has the profession been more thoroughly organized, or more interest manifested.

Sangamon county heads the list with 123 members, 24 of which have been taken in during the last year. There have been four suspensions and lapses, three removals from the county and one death.

McLean county comes next with 97 members; 16 new members taken in during the year. No lapses or suspensions, three removals from county, and two deaths.

Iroquois-Ford reports 57 members, seven of which are new recruits. Seven lapses and suspensions, five removals from county, and no deaths.

Logan county has 31 members, fifteen of which were taken in during the last year. Two lapses and suspensions, eight removals from county, and no deaths.

Tazewell county reports 30 members, five of whom are new recruits, with two lapses and no deaths.

DeWitt county reports a membership of 24, six of which have been taken in the past year. No lapses or suspensions, no removals and no deaths.

Mason county reports an even break. 21 members, two new recruits, two removals from county, no lapses or suspensions and no deaths.

Menard county reports 15 members. One new member taken in during the year, no lapses or suspensions, no removals and one death.

There has been some talk on the part of both societies, to consolidate Menard and Sangamon counties, but as yet this has not been consummated.

It will be noticed that the lapses and suspensions reported are more than offset by removals from county, which is probably the cause of all, or nearly all of the lapses and suspensions, which, to my mind, indicates an active interest by every member of the society.

The grand total of membership of the Fifth District, is 341. A net increase of 39 over last year.

Respectfully submitted,

C. S. NELSON,
Councilor Fifth District.

President Whalen: What is your pleasure regarding report of chairman of council? Motion made, seconded and carried that report be filed.

Report of President Whalen was next in order.

PRESIDENT'S REPORT.

When inducted into office one year ago there were in good standing on the membership role of the society 5,532 names. During the past year it has been a part of the policy of the administration to help make the Illinois State Medical Society the largest numerically and at the same time make it the most influential of any of the State Medical Societies. The latter we have accomplished for it is today the most alert and influential of the State Medical Societies but it still lacks about 1,000 in membership to make it the largest in numbers.

In July with the possibility in view of increasing the membership a list of non-members of the State Society was prepared and a personal letter was mailed to each. In this letter was set forth the advantages of membership in this organization and an appeal was made to each desirable non-member to make application to his county society for membership.

In September a second letter was mailed to those who in the meantime had not responded to the first letter by making application to the local society.

In October a card index list of desirable non-members was made for each councilor district and a copy of same sent to the respective councilor for his convenience in keeping track of the non-members in his district. At the same time a form letter was prepared and sent over the signature of the respective councilor to each desirable non-member soliciting his membership in their respective county society.

As a result of the activity mentioned 1,021 new names have been added to the membership role.

At the present time every county in the state is organized and holding regular meetings and presenting excellent programmes and discussions. Too, there is more alertness and activity in the component societies than at any period in the history of the parent organization. Counties which have been sluggish and

indifferent for years are now awake to their possibilities.

I have appeared before 28 county societies—have attended all the council meetings—have carried on a systematic correspondence with the secretaries of the various county and branch societies as well as an extensive correspondence with the membership. I have written some 2,500 personal letters and have been instrumental in sending out some 20,000 circular letters soliciting membership as well as soliciting advertising for the JOURNAL, etc. As a result of the activity indicated we have added 1,021 new members to the society.

The financial condition of the treasury when I came into office has made the duties of the president for the past year unduly arduous. It is doubtful if a former president has ever been called upon to help provide the funds with which to carry on the work of the society. How well we have succeeded in bettering the condition of the treasury is shown by the report of the chairman of the council. I might say in passing that the advertising contracts now in force are nearly 200 per cent greater than one year ago.

Another item showing the activity of your officers during the past year is the following:

That we have at this meeting the greatest number of exhibitors in the history of the society. Every bit of available exhibit space has been sold and this too at a figure 20 per cent in excess of previous years. Again, several prospective exhibitors had to be turned away because of lack of additional exhibit space. This increased demand for exhibit space is an indication of an appreciation by those outside the profession of the new life and activity taken on by the society.

I desire to thank the members of the house of delegates, the officers of the county societies, the members of the council and the general membership of the society for their very hearty co-operation in making this the banner year of the Illinois State Medical Society.

Motion made, seconded and carried that president's report be filed and published.

Secretary Gilmore then read the report of the medico-legal committee.

REPORT OF THE MEDICO-LEGAL COMMITTEE.

This has been a very active year in Medico-Legal matters. An exceptionally large number of threatened suits has been presented to the committee. Fortunately your committee was able to dissuade 90 per cent of those who threatened, from actually filing suit. This was easily accomplished in most cases when it was found the physician would be defended by the State Medical Society. There were 28 suits filed outside of Cook county, and there are now 32 on the calendar in Cook county. Of the number of suits brought and tried the past year judgment was obtained against the defendant in only one case. The judgment in that case was for the very nominal sum

of \$200. This case has been appealed and cannot fail to be won or at the worst reversed in the upper court.

In practically every case of threatened suit the grievance against the physician has been due to the fact that the doctor had the audacity to render a bill for services rendered.

Committee.

Motion made, seconded and carried that report be adopted as read.

President Whalen: At the last meeting of the House of Delegates a resolution was passed appropriating not less than \$500.00 as an honorarium to Dr. Weis. The committee is ready to report.

Dr. Cooley: In view of the fact that money talks I presume remarks are unnecessary, and yet, there devolves upon me at this time one of the most pleasant duties I have ever been called upon to perform. Something like 17 years ago this House of Delegates elected a young man secretary, Dr. E. W. Weis. This Society at that time comprised a membership of 450 names. Through all the 16 years of his service there was one thing that characterized the work of Dr. Weis, and that was untiring vigor. Remarks from me at this time would be almost unnecessary, and yet I call upon you to bear testimony with me as to the facts which I have just stated.

This is not given because of its intrinsic value, but because it is the best we can do, Dr. Weis, to impress you with the fact that we appreciate the things that you have done. Any man who is familiar with organizations of any kind will tell you that an organization is just as strong as its secretary. The fact that this organization has developed from a membership of 450 at his induction to something like 6,000 at the time when he left that office, speaks for itself.

Dr. Weis, I envy you. Not the money, not your job as secretary of this society, but I do envy you those old associations. Go back to the days of your youth, your associations with Davis and Hamilton, those men who stood on the bridge and you as a boy, kept the log book. One by one you have seen them take to the small boat and take to sea. We do this because we do not believe in bringing flowers to a man when he is dead. We try to speak these kind words to you in the height of your manhood. Even now the sun of your usefulness is at its zenith. Your shadows like theirs will begin to grow; ere long

you, like they, will pass on down the valley and be lost to view, but inasmuch as you have kept us eligible, inasmuch as you have seen that we were always paid up, may the time come to you, when you march on the other side and step out on the white bright light, may the man who keeps the registration booth say, here comes the man who is eligible.

Dr. Weis: President, Gentlemen: Ever since my official connection with this society it has been my good fortune to receive an honor at every meeting, and it seems that the habit continues in spite of my official insignificance. Once again you have placed me under an obligation, just as if my hands were still upon the plow, directing the energy of this society, this one that I do love so well. I want you to know that I appreciate, above all things, the underlying thought that suggests this presentation, and I am grateful for that thought. From my heart, gentlemen, I thank you, and I want to assure you that so long as life remains to me it shall ever be my utmost endeavor to do everything that I can in my humble way for the prosperity, the usefulness and the advancement of the Illinois State Medical Society. Again I thank you.

President Whalen: I will revert back for a moment for the councilor district reports. I was under the impression that Dr. Pence had all the reports, but I find that the respective councilors have their reports, and you would no doubt appreciate hearing the good things they are doing.

Dr. J. A. Marshall, of Pontiac; Dr. E. B. Cooley, Dr. C. D. Center, Dr. F. C. Sibley, Dr. C. F. Burkhardt, made reports.

NINTH DISTRICT.

Gentlemen: Your councilor for the Ninth District begs to submit the following report:

The district as a whole is in better condition than last year, but there still remain several counties in which the societies are in an unsatisfactory condition.

During the year, your councilor, in company with Secretary Gilmore, visited the Edwards County Society with the view of adjusting a controversy that that society was having with a physician in regard to becoming a member of the society. We were unable, however, to relieve the situation.

As you are aware, this district is composed of twenty-three counties, and on account of the poor transportation facilities, it is difficult for one man to look after the situation. I would therefore recommend that this territory be divided into two councilor districts, or that the councilor be allowed two deputies. Many of the counties have only a very few

physicians, and it is difficult to create interest in society work. But more interest is being manifested, and they can gradually be drawn into the fold.

Respectfully submitted,

FRANK C. SIBLEY,
Councilor.

Motion made, seconded and carried that the reports of the various councilors be placed on file.

Report of the committee on public policy next in order.

Dr. Harvey: No subjects have been referred to this committee during the past year, and at this session of the House of Delegates this committee had no report to make.

Dr. Taylor read his report of the legislation committee.

REPORT OF COMMITTEE ON MEDICAL LEGISLATION.

At the Peoria meeting of the Illinois State Medical Society in nineteen hundred and thirteen, your committee on medical legislation made a report on all bills at that time pending and, subsequently, after the adjournment of the legislature, also made a supplementary report which was published in the JOURNAL of the society.

To refer to these measures at this time would be a repetition of matters with which you are all thoroughly familiar. As you know, there has been no session of the legislature since that time. Our report will, at present, consist of a brief review of our system or organization with a few suggestions for the future. It was found that the former plan of conducting legislative work was inadequate for our present needs. This was particularly due to the fact that numerous, so-called systems of practice were springing up, all of them knocking at the doors of the legislature for some sort of statutory recognition. It was to meet demands of this nature that your committee insisted on the policy of exacting a single portal of entry for all who desired to engage in the practice of medicine and surgery.

We have not particularly busied ourselves with the question of therapeutics, but have maintained that the state should not put the stamp of its approval upon any system of practice which attempts to discredit established principles of etiology and pathology upon which the health laws of all civilized nations are based. It was in order to combat this propaganda and to establish a campaign of education that your committee deemed it necessary to organize an auxiliary committee composed of one or more members from the county medical societies who were in closer touch with their representatives in the general assembly. Naturally the members of the legislature are more inclined to consult the wishes of their own constituents and look to them for suggestions. Under the old system, members of your committee were frequently con-

fronted with the statement that "Our home doctors have said nothing to us in regard to this subject." It was to obtain the co-operation of the home physician that the present organization was effected. In our judgment, it is far superior to the original plan, but the future will demand a higher grade of efficiency.

More bills of medical nature were introduced in the last session of the legislature, than at any time in the history of the state. Public interest in health matters will increase rather than diminish this number in the future. The original copies of these measures are printed for distribution among the members. It is only through courtesy, that your committee is able to obtain a limited number of the bills for examination. It would seem wise to be able to promptly place at least a synopsis of every important medical bill in the hands of the legislative committee of each county society. This would naturally increase the expense incurred in the work, which in the past has not exceeded six or seven cents annually for each member. Many of the Chicago members and quite a number from the state at large have appeared at Springfield in the interest of medical legislation, always at a sacrifice of time and money. In view of these facts, your committee feels that we are not asking too much when we suggest that the committee on medical legislation in the county medical societies should be composed of men who are willing to devote a little of their time to personal interviews with their representatives explaining our attitude in regard to measures which are of interest to the medical profession. Your committee believes that the present system of organization has increased professional interest in legislation, and we wish to acknowledge the valuable and prompt assistance received from many members throughout the state and would respectfully suggest that legislative measures be made the subject of discussion at times in the county societies during the sessions of the legislature.

The biennial election for members of the legislature will occur next November. The medical profession of Illinois should be thoroughly organized for the consideration of measures which are of vital interest to every ethical physician in the state. Our membership is the largest in the history of the society. Every effort has been put forth to add to that membership the name of every physician who is eligible. This work will be of little benefit to the profession unless we become factors in the consideration of laws having a bearing upon medical subjects. Important constructive legislation such as a vital statistics law and others will demand early consideration. Freak measures will be presented as usual, together with every device for lowering medical standards.

There can be no valid reason offered for several different standards of licensure, yet the disciples of every dogma demand a separate board of examiners. We believe that the present requirements should be maintained, and that those who are permitted to administer to the sick should pass an acceptable and uniform examination in the fundamental and estab-

lished principles upon which the science of medicine rests.

Respectfully submitted,

L. C. TAYLOR, Chairman.

J. N. BACON,

J. V. FOWLER,

Committee on Medical Legislation,

Illinois State Medical Society.

Dr. Whalen: If the members of the profession throughout the state, and I have had some experience I assure you, would respond to the contributions that Dr. Taylor alludes to, even if they would respond to the letters, it would be a big factor and would solve the difficulties that the committee has to encounter at every session of the legislature. The trouble is that the gentlemen depend on the committee to do all the work, when as a matter of fact the doctor in the town or city where the member of the legislature happens to reside can do more in a minute than your committee can do in six months.

Now what is your pleasure regarding Dr. Taylor's excellent report? (Motion made, seconded and carried that Dr. Taylor's report be adopted.)

Report of the committee on constitution and by-laws.

Motion made that committee on constitution and by-laws give notice of changes on constitution and by-laws and it be taken up on Thursday morning. Seconded and carried.

Dr. A. M. Corwin read report of committee on medical education, for Dr. E. P. Sloan.

Dr. Brittin next referred to the report of the Committee on Constitution and By-Laws, which had been passed out in printed form. A motion was made and seconded that they be rewritten. Carried.

Next in order was Report of Committee on Medical Education.

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION.

The report of your Committee this year is very brief, but perhaps of unusual interest to the profession of the State.

It is a matter of great satisfaction to your Committee that its relations with the State Board of Health, and with the Medical Colleges of the State, are so harmonious.

On the evening of April 1 the Chicago Medical Society devoted its program to the subject of medical education. From the interchange of opinion following this meeting, and the discussion of the papers read at that meeting, the difference of opinion among the various interests represented regarding entrance and

graduation requirements of medical students was so slight that the time seemed opportune for bringing together those interested in the betterment of medical education in this State.

The President of the Chicago Medical Society, Dr. C. P. Caldwell, was empowered by the Council at its April meeting to appoint a Committee to consider the matter of Medical Education. The members of this committee are as follows:

Dr. Arthur M. Corwin,	Dr. John B. Murphy.
Chairman.	Dr. Arthur Dean Bevan.
Dr. Martin M. Ritter,	Dr. Maximilian Herzog.
Secretary.	Dr. Clifford Mitchell.
Dr. William J. Butler.	Dr. E. W. Andrews.
Dr. Charles H. Kahlke.	Dr. A. C. Cotton.
Dr. John A. Robison,	Dr. E. P. Sloan, of
President State Board	Bloomington.
of Health.	Dr. C. J. Whalen.
Dr. George B. Young,	Dr. C. P. Caldwell.
Commissioner of	Dr. Charles H. Parkes.
Health of Chicago.	Dr. W. L. Noble.
Dr. William A. Pusey.	Dr. N. S. Davis, Jr.
Dr. Ludwig Hektoen.	Dr. John Dill Robertson.
Dr. Harry G. Wells.	

This list includes men from the six leading Medical Colleges, the leading institutions of Medical research, the State Board of Health, the Chicago Board of Health, the Chicago Medical Society, both branches of the profession and representatives of the Illinois State Medical Society.

At a meeting of this committee, called May 15, at Hotel LaSalle, a majority were in attendance, and after free discussion, the several practical points brought out were put as motions, and unanimously passed, as follows:

1. It is the consensus of opinion of this body that there should be a five-year course of medicine, the first year of which should embrace chemistry, physics and biology, which may be taken in a medical school or in a college or university recognized by the State Board of Health.

2. It is the consensus of opinion of this body that no correspondence course be accepted as the equivalent of the year of chemistry, physics and biology.

3. It is the consensus of opinion of this body that a compulsory sixth, hospital, interne year should be required in this State, applying to all students matriculating in October, 1914, and therefore operative for them at the end of the year 1919.

4. It is the consensus of opinion of this body that we endorse the work of the present State Board in sending an inspector to each medical school in Illinois to examine the credentials of each matriculant two weeks after school opens.

5. It is recommended to the House of Delegates of the State Society that a committee be appointed to go before the Legislature at the next session and, in conjunction with the State Board of Health, ask for an annual appropriation of at least Two Hundred Thousand Dollars (\$200,000) additional, for the work of that Board.

6. The Council on Medical Education of the Amer-

ican Medical Association is requested to advance to Class "B" all colleges in Chicago which conform to the basis of agreement arrived at tonight by this Committee.

Any college not coming up to this standard of requirement should not be recognized.

7. It was moved and seconded that these recommendations, as formulated, be transmitted by the Chairman and Secretary to the Committee on Medical Education of the Illinois State Medical Society for consideration, in order that these may be incorporated in their report to the House of Delegates. Carried.

8. It was moved that the incoming President of the Chicago Medical Society be requested to continue the committee as now constituted. Seconded and carried.

* * * * *

Your committee feels that the recommendations of the Chicago committee, as herein stated, should be endorsed by this House of Delegates. It is a matter for congratulation that representatives of the several college interests in Chicago have combined for the promotion of such a practical program, and there seems no reason why the organized profession of this State should not unite upon this basis to further the work of placing Illinois in a position of dignity and respectability which her importance demands.

We append extracts from three letters received in answer to a request for information sent to every Medical School in the State. Our request was made so late that there was scant time in which to hear from all these institutions.

"The University of Illinois received, for the first time in its history, an appropriation from the last legislature which it could use upon medical education. It has used these funds to put its medical college on a sound educational basis by advancing the standards both for admission and graduation, improving the equipment and professionalizing the teaching force. For admission last October, the completion of one year's work in the college of liberal arts and sciences was required. For admission in the coming October, the completion of two years' work in a standard American college of liberal arts and sciences will be required, including a sufficient knowledge of chemistry, physics and biology to make medical study efficient."

"Members of the Illinois State Medical Society are requested to visit the buildings of the College of Medicine of the University of Illinois and inspect the work of the school. Suggestions as to ways and means of improving the school and making it what it ought to be as one of the important state schools of medicine will be welcomed."

"There will be engaged in the Scientific Work, in charge of important departments, during the next academic year, eight men of professorial rank and thorough scientific training who will be giving their entire time to the work of these laboratory years."

"(Signed) EDMUND J. JAMES,
President University of Ill."

"The changes in Hahnemann Medical College during the past year have been, first, mainly along the

line of systematizing and organizing the work and in better correlating the different branches of our work, and especially in bringing the laboratory and clinical work more closely in touch with each other."

"* * * The College has adopted a preliminary year in addition to the complete high school course, as a requisite for matriculation."

"(Signed) JOSEPH P. COBB, M. D.
"Dean of Hahnemann Medical College."

"Bennett Medical College, department of Medicine of Loyola University, desires to state that it has raised its entrance requirements so that in addition to a high school education as a preliminary requirement one year additional of Biology, Chemistry and Physics is required. This work may be done in the medical school, in which event the course in the medical school is five years.

"It also requires one year hospital internship before full graduation. This is required of all students matriculating on and after October 1, 1914—in other words, those students that graduate in 1919 will be required to serve one year in a hospital before receiving their diploma from the college.

"(Signed) JOHN DILL ROBERTSON, M. D.
"President Bennett Medical College."

Respectfully submitted,

E. P. SLOAN, Chairman.

ARTHUR M. CORWIN, Sec'y.

F. C. BUCKMASTER.

Committee on Medical Education.

Dr. Caldwell: I move the report of the Committee on Medical Education be received and approved and endorsed. Seconded and carried.

Motion made for adjournment until 8:30 Thursday morning. Seconded and carried.

THURSDAY, MAY 21, 1914, 8:30 A. M.

SECOND MEETING.

Secretary Gilmore: Those that did not bring their credentials to the last meeting may do so now. (Credentials brought forward.)

President Whalen: This House will come to order. Secretary will please read the roll call. (Motion made and seconded that roll call be dispensed with. Carried.)

Secretary Gilmore: (Reads minutes of last meeting.)

President Whalen: You heard report of secretary. What is your pleasure? (Motion made and seconded that minutes be approved as read. Carried.)

President Whalen: Next in order is election of officers.

(Appointment of tellers, Drs. Sibley, Sloan and Carter.)

NOMINATIONS FOR PRESIDENT ELECT.

Dr. Burkhart: I wish to place before this House of Delegates the name of a gentleman whom I consider, and I think you will all be of consenting voice, as a man who is preeminently qualified for the position of president of the Illinois Medical Society, a man who has grown gray in zealous service in behalf of the medical profession of Illinois, Dr. C. W. Lillie, of East St. Louis.

(Motion made that nominations be closed. Seconded and carried. Moved that Secretary Gilmore be ordained to cast an unanimous ballot for C. W. Lillie. Carried.)

NOMINATIONS FOR FIRST VICE-PRESIDENT.

Dr. Rebbock: I desire to nominate Dr. Otto Freer, of Chicago. (Moved, seconded and carried that secretary cast unanimous ballot for Dr. Freer.)

NOMINATIONS FOR SECOND VICE-PRESIDENT.

Secretary Gilmore: I wish to nominate Dr. E. J. Brown, of Decatur, Ill. (Moved, seconded and carried that nominations be closed and secretary cast a unanimous ballot for Dr. E. J. Brown.)

NOMINATIONS FOR SECRETARY.

Dr. Gilmore, of Mt. Vernon, Ill., is nominated. (Moved that nominations be closed and president cast a unanimous ballot for House of Delegates. Seconded and carried.)

NOMINATIONS FOR TREASURER.

Dr. Sibley nominated Dr. E. G. Markley, of Belvidere, Ill. (Moved and seconded that nominations be closed and secretary cast unanimous vote for Dr. Markley for treasurer. Seconded and carried.)

NOMINATIONS FOR COUNCILOR, FIRST DISTRICT.

Dr. Penee read a telegram from Dr. Stealey stating that he could not again serve as councilor from the First District.

Dr. Windmueller, of Woodstock, Ill., is nominated. (Moved and seconded that secretary cast unanimous ballot for Dr. Windmueller. Carried.)

NOMINATIONS FOR COUNCILOR, SECOND DISTRICT.

Dr. E. S. Gillispie, of Winona, nominated. (Moved and seconded that secretary cast unanimous ballot for Dr. Gillispie. Carried.)

NOMINATIONS FOR COUNCILOR, EIGHTH DISTRICT.

Dr. E. B. Cooley, of Danville, has been nominated. (Moved and seconded that nominations be closed and secretary cast unanimous ballot. Carried.)

NOMINATIONS OF DELEGATES TO THE A. M. A.
(6 to be elected.)

Dr. Nelson nominated G. L. Armstrong, of Taylorville.

Dr. Nagel nominated C. B. Caldwell, of Chicago.

Dr. C. D. Pence nominated W. L. Noble, of Chicago.

Dr. Betz nominated H. F. Lewis, of Chicago.

——— nominated Dr. Alexander, of Oakland.

Dr. Sibley nominated W. J. Hamilton, of Mt. Vernon.

Dr. Burkhart nominated F. C. Gale, of Pekin, Ill.

(Moved and seconded that nominations be closed.)

Report of Teller:

Armstrong	71
Caldwell	70
Noble	70
Lewis	61
Hamilton	68
Gale	57

NOMINATIONS FOR ALTERNATE DELEGATES
TO THE A. M. A.

Dr. H. N. MacKeehnie, Chicago.

Dr. Buckmaster, Effingham.

Dr. L. G. Burroughs, Collinsville.

Dr. F. Tice, Chicago.

Dr. D. R. McMartin, Chicago.

Dr. S. C. Stremmel, Macomb.

Dr. A. Alguire, Belvidere.

Report of Teller:

Alguire	49
Burroughs	51
Buckmaster	52
Tice	53
MacKeehnie	50
McMartin	51
Stremmel	6

NOMINATIONS OF MEDICO-LEGAL COMMITTEE.

(1 man from each county.)

Adams—John A. Koch, Quincy.

Alexander—Samuel Dodds, Cairo.

Bond—Not yet appointed.

Boone—Robt. Mitchell, Belvidere.

Brown—William Parker, Mt. Sterling.

Bureau—C. A. Palmer, Princeton.

Calhoun—Not yet appointed.

Carroll—G. W. Johnson, Savanna.

Cass—John A. Glenn, Ashland.

Cook—C. B. King, Chicago.

Cook—N. M. Eberhart, Chicago.

Cook—A. A. Small, Chicago.

Champaign—W. F. Burres, Urbana.

Christian—J. H. Miller, Pana.

Clark—R. H. Bradley, Marshall.

Clay—E. P. Gibson, Louisville.

Clinton—J. J. Moroney, Breese.

Coles—J. T. Montgomery, Charleston.

Crawford—J. L. Firebaugh, Robinson.

Cumberland—J. F. Adams, Hazel Dell.

De Kalb—G. W. Nesbitt, Sycamore.

DeWitt—G. S. Edmonson, Clinton.

Douglas—W. E. Rice, Tuscola.

Edgar—C. L. Kerriek, Chrisman.

Edwards—C. S. Brannan, Albion.

Effingham—E. W. Brooks, Beecher City.

Fayette—E. H. Dale.

Franklin—Moses Pulverman, Benton.

Fulton—W. S. Strode, Lewistown.

Gallatin—J. W. Bowling, Shawneetown.

Greene—H. A. Chapin, White Hall.

Grundy—H. M. Ferguson, Morris.

Hamilton—Henry E. Hale, McLeansboro.

Hancock—Charles L. Ferris, Carthage.

Hardin—J. A. Wernaek, Karbers Ridge.

Henderson—J. P. Riggs, Media.

Henry—C. W. Hall, Kewanee.

Jackson—Not yet appointed.

Jasper—James P. Prestley, Newton.

Jefferson—J. H. Mitchell, Mt. Vernon.

Jersey—H. L. Gledhill, Jerseyville.

Jo Daviess—Not yet appointed.

Johnson—A. L. Brown, Vienna.

Kane—Geo. F. Allen, Aurora.

Kankakee—C. F. Smith, Kankakee.

Kendall—R. A. McClelland, Yorkville.

Knox—Ben. D. Baird, Galesburg.

Lake—L. H. Tombaugh, Waukegan.

La Salle—E. W. Weis, Ottawa.

Lawrence—B. F. Hockman, Sumner.

Lee—J. N. Nelms, Taylorville.

Logan—Carl Rembe, Lincoln.

Livingston—A. B. Middleton, Pontiac.

McDonough—Arthur Adams, Macomb.

McLean—T. D. Cantwell, Bloomington.
 Macon—W. H. Bell, Decatur.
 Macoupin—J. S. Collins, Carlinville.
 Madison—E. A. Cook, Alton.
 Marion—W. D. Richardson, Centralia.
 Marshall—I. N. Smith, Henry.
 Mason—Not yet appointed.
 Massac—A. C. Ragsdale, Metropolis.
 Menard—B. D. Epling, Greenview.
 Mercer—V. A. McClanahan, Viola.
 Monroe—L. Adelsberger, Waterloo.
 Montgomery—L. S. Brown, Hillsboro.
 Morgan—Hyde West, Jacksonville.
 Moultrie—W. P. Davidson, Sullivan.
 Ogle—L. A. Beard, Polo.
 Peoria—E. E. Barbour—Peoria.
 Perry—Not yet appointed.
 Platt—C. M. Bumstead, Monticello.
 Pike—L. J. Harvey, Griggsville.
 Pulaski—W. C. Wessenberg, Mound City.
 Pope—Not yet appointed.
 Putnam—John Anemone, Granville.
 Randolph—H. C. Adderly, Chester.
 Richland—A. T. Telford, Olney.
 Rock Island—G. L. Eyster, Rock Island.
 St. Clair—F. E. Anten, Belleville.
 Saline—Not yet appointed.
 Sangamon—W. A. Young, Springfield.
 Schuyler—Not yet appointed.
 Scott—James Miner, Winchester.
 Shelby—Frank Auld, Shelbyville.
 Stark—E. B. Packer, Toulon.
 Stephenson—W. E. Karcher, Freeport.
 Tazewell—H. V. Bailey, Pekin.
 Union—J. J. Lence, Jonesboro.
 Vermilion—Joseph Fairhall, Danville.
 Wabash—J. B. Maxwell, Mt. Carmel.
 Warren—H. M. Camp.
 Washington—Not yet appointed.
 Wayne—W. C. Sibley, Fairfield.
 Whiteside—Chas. G. Beard, Sterling.
 White—P. C. Giltner, Maunee.
 Will—Wm. Dougall, Joliet.
 Williamson—J. G. Parmley, Marion.
 Winnebago—Emil Lofgren, Rockford.
 Woodford—J. F. Page, Eureka.

Moved and seconded that secretary cast unanimous ballot for medico-legal committee. Carried.

NOMINATION OF COMMITTEE ON PUBLIC POLICY.

J. M. Harvey, Chicago.
 Chas. H. Parkes, Chicago.
 O. B. Edmonson, Peoria.

Moved and seconded that secretary cast unanimous ballot for committee. Carried.

COMMITTEE ON MEDICAL LEGISLATION.

H. C. Blankmeyer, Springfield.	} Nominees.
N. M. Eberhart, Chicago.	
J. H. Bacon, Peoria.	

Dr. Taylor, of Springfield, announced by proxy that he would not be a candidate for reelection to this committee.

Discussion:

President Whalen: I am in favor of inducing Dr. Taylor, of Springfield, to sit on the committee for he knows the members of the legislature.

Dr. Pence: Dr. Taylor has done an immense amount of work on this committee for a long time. That he has tired of the work no doubt is true. This I believe to be the most important committee to be elected by this House today. Dr. Taylor has been doing the work so long, he lives in Springfield, knows the legislative ins and outs, and I believe there is no man of the state society who can do the work so well as Dr. Taylor. I believe that if this House wants Dr. Taylor to continue the work and will convince him of it and we show him that we appreciate the work he has done, that he will serve on the committee again. I believe it a very grave mistake to let Dr. Taylor off the committee.

Dr. Britten: I fully concur in everything Dr. Pence has said. I believe Dr. Taylor has done more valuable work in this capacity than any other man in this society can do. I believe Dr. Taylor feels that his work has not been appreciated. I believe it is due him that this society go on record as endorsing his very efficient service as chairman of the committee on medical legislation. My opinion is that Dr. Taylor will accept this position if it is unanimously asked by this House.

Dr. Nelson: I withdraw the name of Dr. Blankmeyer and insist on Dr. Taylor.

NOMINEES.

L. C. Taylor, of Springfield.
 N. M. Eberhart, of Chicago.
 J. H. Bacon, of Peoria.

Moved and seconded that secretary cast a unanimous ballot for these men. Carried.

NOMINATIONS FOR MEDICAL EDUCATION COMMITTEE.

Dr. Sloan is the retiring member.

Nominees:

H. S. Metcalf, Carroll County.

Martin M. Ritter, Chicago.

Report of Teller:

M. M. Ritter..... 43

H. S. Metcalf..... 16

Secretary announces that medico-legal committee is to meet immediately after house adjourns in assembly room of the Y. M. C. A.

Dr. Pence: I will state that the local committee of arrangements have done a great deal of work during the last year in getting ready for this meeting. They have sacrificed time and money to entertain us and have done so royally. I think that this House should extend a vote of thanks to Decatur, and especially to the committee for their entertainment at the meetings. (Seconded and carried by rising vote.)

Dr. Wilhelmy: As a member of this arrangement committee I want to assure that we appreciate your vote of thanks and we have tried this week to make it as pleasant a convention as we possibly could. We have been a little handicapped because we were rather surprised when we knew that you had given us the convention. We were not expecting it or looking for it. This is not yet a convention town. We are a little handicapped for hotel space and also for buildings to amply accommodate the large crowd, but we certainly put forth every effort to make this convention a success.

Whether we have or not we do not know more than the personal expressions we have heard in the last day or two. We want to thank you for coming here and want to assure you that in the next few years we want you back again, for we will make this town a convention town. We are building a new hotel and will build a coliseum. Lastly, we will be able to settle this wet and dry question to the satisfaction of the Illinois Medical Society.

It has been gratifying to us to know that we have good weather and have as good a turn out as we did and I, as well as the members of the arrangement committee, will thank one man in

particular for the assistance he has given us, for without his assistance we would have been unable to take care of this proposition of the convention; that is our secretary, Dr. Gilmore. He has been faithful, been on the job all the time, and not only we appreciate it but also the exhibitors feel kindly toward Dr. Gilmore for the kind work he has put in. I personally want to extend a vote of thanks from the committee on arrangements of Decatur to the Illinois Medical Society.

Dr. Whalen: I want to emphasize the appreciation which the exhibitors feel toward the committee of arrangements and Dr. Gilmore likewise. They have told me personally that they have had the best year in their experience in going to a state medical society. They have sold more goods, there seems to be more interest, and I assure you that they are thoroughly appreciative of all this committee has done. We have had the largest number of exhibitors that have attended a state meeting. A number had to be turned away for we could not provide space for them.

Dr. Gilmore: (Makes a motion that House of Delegates ratify various officers as made by sections. Seconded and carried.)

FIXING PER CAPITA TAX.

Motion made and seconded that \$1.00 be appropriated for medico-legal committee and \$1.50 for society. Carried.

FIXING THE NEXT MEETING PLACE.

Dr. Cantwell, on behalf of the Commercial Club of the City of Bloomington and the citizens, extended an invitation to that city.

Ex-Governor Northup extended an invitation on behalf of the people of Springfield.

Dr. Van Derslice: I move that we accept Springfield as meeting place for 1915, with Bloomington as the probable place for 1916. (Seconded and carried.)

COMMITTEE ON CONSTITUTION AND BY-LAWS.

Members appointed:

Down State: W. H. Gilmore,
E. B. Cooley,
C. D. Center,
C. W. Lillie.
Chicago: J. C. Stubbs,

Henry F. Lewis,
A. M. Harvey.

COMMITTEE ON PUBLIC POLICY.

Dr. Harvey: WHEREAS, adequate medical legal defense or protection at a minimum cost should be available to every member of the medical profession, therefore, be it

Resolved by this house of delegates that a committee of 5 members of this society make a thorough survey of the subject of medical legal defense or protection and report with recommendations at the next annual session of the House of Delegates. (Moved and seconded that report be adopted. Discussion.)

Dr. Stockling: I move that motion be tabled. (Seconded.)

Dr. Harvey: The committee would like to have this public policy passed. It has nothing to do whatever with the Medico-Legal Committee of the Illinois Medical Society but to make a study of the medical legal defense as now offered and present a comprehensive report to this House of Delegates. We have seen today that men whose names are printed as members of the Medico-Legal Committee have been dead for four years and it is about time that in view of the compensation act and other measures that have been adopted by the state legislature, professions of the state should have a competent legal court of medico-legal defense.

A very spirited discussion followed, after which the original resolution as read by Dr. Harvey was seconded and carried. Five men were appointed to the committee, three from Chicago and two from down state.

Committee: J. C. Stubbs,
A. F. Wilhelmy,
E. W. Weis,
C. B. King,
A. M. Harvey.

COMMITTEE ON NATIONAL DEPARTMENT OF HEALTH.

Dr. Harvey: Your committee approves of the provisions of the so-called Owen bill providing for a National Department of Health and recommends that a specific resolution endorsing these provisions be adopted by this House of Delegates and that the secretary of this society convey this information, together with a resolution to the

House of Delegates of the American Medical Association.

Also that Senators Sherman and Lewis and the entire congressional delegation of Illinois be informed by the secretary of the action of this society and be requested to work for such legislation.

Resolved that the Illinois Medical Society instruct its delegates to the A. M. A. to support the bill for a National Department of Health and as a means thereto to oppose all acts of trustees and other officials of the society in opposition to such a move, either by direct opposition or by feeble support or advocacy of measures, the object of which action is to harm the cause of such a bill.

(Moved and seconded that report and the recommendations be concurred in and the resolutions adopted. Carried.)

Dr. Center: (Reads resolution.)

Whereas, There is now pending in the U. S. Senate a bill, known as the Harrison Antinarcotic Bill (H. R. 6282), intended to check the alarming growth in the traffic in the narcotic drugs and to prevent the abuses which have grown out of the illegal and improper use of these otherwise useful remedies; and

Whereas, Attempts have been made to secure the amendment of this bill in such a way as to threaten the integrity and greatly impair the usefulness of the medical profession and interfere with its efforts for the prompt and efficient relief and cure of the sick, by taking away from the physician the right of dispensing and distributing these remedies, giving him the right of personal administration only, and requiring unnecessary and burdensome keeping of records of all quantities and dose-forms administered; and

Whereas, Bills of this kind and other measures of a different character likely to interfere seriously with the legitimate activities of the members of the medical profession have been and are being introduced from time to time in Congress and in our state legislatures; therefore,

Be It Resolved, That the Illinois State Medical Society hereby heartily indorses the Harrison Antinarcotic Bill, urges its passage without the objectionable proposed amendments just cited and pledges itself to support all proper measures to secure the prohibition of the illicit sale and the improper use of narcotic drugs; and

Be It Resolved, That the Illinois State Medical Society hereby condemns the introduction and opposes the passage of the amendments to the Harrison Bill already referred to and all other measures of a similar character which may be introduced in our national Congress or our state legislature; and

Be It Resolved, That the Legislation Committee of the Illinois State Medical Society be and is hereby directed to request that all bills affecting the legitimate freedom of action in the choice and administration of drugs (as well as in all other matters) of the physicians of the state of Illinois and endangering the welfare of their patients shall receive careful consideration at the hands of the medical profession of this state or its authorized representatives before they be permitted to become laws; and that, pending such consideration, said committee be directed to oppose the passage of any bills of such character; and

Be It Resolved, That full data concerning all legislative matters of interest to the physicians of this society shall be published from month to month in the columns of the Illinois State Medical Journal; also

Be It Resolved, That a copy of these resolutions be sent to our Representatives in Congress, to our United States Senators, and to the Governor of the state of Illinois.

(Motion made and seconded that resolution be adopted. Carried.)

Dr. Burkhardt: *Be it Resolved* by the House of Delegates of the Illinois State Medical Society that we deplore the organization of the American College of Surgeons as violating the fundamental democratic principles upon which the American Medical Association is based.

And we further instruct our delegates in the house of delegates of the American Medical Association to present this resolution to said body and use all honorable means to secure its passage.

(Seconded and carried.)

Dr. Lewis: WHEREAS, The Appellate Court of Illinois in the case of Lydston vs. Wayman, rendered a decision which casts serious doubt upon the legality of the corporate acts of the American Medical Association during recent years, and

WHEREAS, The text of this important decision has never been published in the *Journal A. M. A.*, and

WHEREAS, The trustees have never satisfactorily explained the situation to the membership, be it

Resolved, That the House of Delegates of the Illinois State Medical Society believes that the questions involved are important enough to be known to every member, to call for publication in the *Journal A. M. A.* and to be pressed for speedy settlement by the highest courts.

(Moved, seconded and carried for adoption.)

Dr. Nelson: It has been discussed several

times, as to the advisability of selecting a permanent meeting place of the Illinois Medical Society. The Illinois Medical Society is getting big enough and powerful enough to have a permanent meeting place, and when that is established the first step will be to provide a permanent home or building.

Any of you gentlemen that have given this any thought will appreciate what this will mean. It will mean more to posterity than to the present members. There are a great many old members in the medical profession that in a lifetime collect a valuable number of books and instruments, which at their death would find a home in a permanent building.

I make a motion that a committee of five be appointed and report as to the advisability of selecting a permanent meeting place.

Dr. C. B. King: I make amendment that it be referred to committee on public policy. (Seconded and carried.)

Dr. Dome: I wish to call to the attention of the Public Policy Committee the recent decision of our Post Master General in reference to the mailing of poisons, which is a deplorable thing, especially to the country doctor.

(Motion made and seconded that it be referred to Committee on Public Policy. Carried.)

Dr. Nelson: Outside of the members of the council of the Illinois Medical Society, I don't believe there is a member of this society that fully appreciates the valuable service rendered by our outgoing president. He has been an indefatigable worker, his resources have been unexcelled and he has spared neither time nor expense to make his term of office a success. I wish that the treasury of this society might be such that I would be justified in voting an honorarium which would in a small way recompense him, but the least we can do is to take a rising vote of thanks.

President Whalen: I thank you gentlemen and I assure you that I did my utmost.

Dr. Burroughs: Kindly look over the program as you have it. I earnestly ask that the nominating committee report be deferred until 1:30. There was a disposition on the part of some men to have on the nominating committee a little better distribution of the reading of papers. This program shows no members from the eastern or southern part of the state and I believe a better representation on the program

would increase the interest of more members. I feel that sections have not been represented as they should have been during the last few years.

Dr. Van Derslice: I want to make a motion and prelude with a few remarks.

This year I have been chairman of the program committee, which is made up of the president and secretary of the Illinois Medical Society, the secretary and chairman of each of the sections, making ten members. The by-laws of the Illinois Medical Society say that the program committee should work under the instructions of the House of Delegates. The last instructions of the House of Delegates are three years old. Those instructions were that the program should be intermingled between surgery and medicine and that the surgical papers should not appear at certain sessions and medical papers at others.

The programs of the various sections were not submitted through the chairman of the program committee to the secretary of the Illinois Medical Society; they were sent directly to the secretary. The secretary working under the House of Delegates' former instructions, intermingled the papers of medicine and surgery. We had to accept the program as laid down.

Now gentlemen, I move that the last instructions of the House of Delegates of 1911 be the instructions of this House of Delegates, and I further move that the programs of the coming meeting to be held in Springfield should be put up to the secretary and that the secretary be in charge of the programs for 1915.

Now gentlemen, I do not believe it is wise for us to do anything as yet, but I do believe we want the conditions that now exist to be freely discussed among the members of the State Society so that they will come back to Springfield in a condition to vote knowingly on the questions that will be submitted.

(Motion seconded and carried.)

Motion for adjournment seconded and carried.

AUDITOR'S REPORT, ILLINOIS STATE MEDICAL SOCIETY, MAY 16, 1914.

June 27, 1914.

Board of Directors, Illinois State Medical Society:

GENTLEMEN:—We have completed an examination of the books of account and records of the Illinois State Medical Society for the year ended

May 16, 1914, and present herewith our report.

The balance on hand May 16, 1913, amounted to \$5,570.68, and the receipts of cash (exclusive of the income from advertisements, etc.) totaled \$6,652.63. The disbursements aggregated \$7,232.67, leaving a balance of \$4,990.64. After deducting from this balance the loss on the JOURNAL of \$3,309.81, the balance on hand at May 16, 1914, amounted to \$1,680.83, which we verified by direct communication with the banks. We present and make a part of this report a detailed statement of these receipts and disbursements.

The transactions of the Medico Legal Defense Fund from July 9, 1912, to May 16, 1914, are shown in a detailed exhibit attached hereto, and the balance in the bank of \$13,994.75 was confirmed to us by the Farmers State Bank of Belvidere, Ill., the depository of this fund.

In our examination of the records, we found that all disbursements were supported by cancelled bank checks and vouchers on file. The amounts received from the secretary have been verified by an examination of the records kept by that official, but we have not confirmed the amount shown on his records by communication with the parties remitting to him.

We have accepted the book figures for the income from advertising, etc., in the JOURNAL, as it would not be practical for us to verify them in the time available.

Yours very truly,

ERNST & ERNST,

Certified Public Accountants.

CASH RECEIPTS AND DISBURSEMENTS.

ILLINOIS STATE MEDICAL SOCIETY.

May 16, 1913, to May 16, 1914.

May 16, 1913—Balance on Hand.....\$ 5,570.68

RECEIPTS.

Gilmore, W. H.....	\$6,151.63	
Weiss, E. W.....	501.00	6,652.63
Disbursements		\$12,223.31
Auditing	150.00	
Councilor Expense.....	1,745.95	
Expense—Gilmore, W. H.....	78.66	
Expense—Baxter, G. E.....	130.39	
Expense—Weiss, E. W.....	150.00	
Expense—Organization exp.,		
circular letters and printing.	1,033.08	
Expense—Miscellaneous	307.80	
Honorarium—Weiss, E. W....	600.00	
Legal	150.00	
Medical Education	48.38	
Medical Legislative Com.....	595.95	
Morgan Co. Library.....	53.90	

Organization Work.....	370.04	
Reporting Meetings.....	523.30	
Stenographer's Salary.....	240.00	
Stationery and Printing.....	505.22	
Treasurer's Salary.....	50.00	
Towle Mfg. Co.....	500.00	7,232.67
		4,990.64

JOURNAL.		
Printing and Postage	\$5,584.98	
Office Expense, etc. —C. D. Pence....	264.65	
Salary—C. D. Pence	900.00	
Salary and Expenses — H. G. Ohls	740.15	
Commissions	1,736.70	9,226.48
Less: Income from Advertisements, etc.	5,916.67	
Loss on JOURNAL...		3,309.81
May 16, 1914—Balance on Hand.....		\$ 1,680.83

DISTRIBUTED AS FOLLOWS.		
Farmers State—Bank — Belvidere, Ill.	1,677.64	
Ogden Ave. State Bank — Chicago, Ill.	3.19	
	\$1,680.83	

MEDICO LEGAL DEFENSE FUND.		
ILLINOIS STATE MEDICAL SOCIETY.		
July 9, 1912, to May 16, 1914.		
July 9, 1912—Balance on Hand.....	\$	8,923.15
RECEIPTS.		
Gilmore, W. H.....	\$5,408.25	
Moyer, H. N.....	547.39	
Weiss, E. W.....	4,827.00	
Interest	309.57	11,092.21
		20,015.36
DISBURSEMENTS.		
Defense Services.....	5,757.11	
Stenographer	162.00	
Office Furniture and Supplies.	101.50	6,020.61
May 16, 1914—Balance in Bank.....		\$13,994.75

Society Proceedings

ADAMS COUNTY.

The weather is too warm for even the Medics, so the Adams County Medical Society held a half day session on Monday, June 8, 1914.

The attendance was small, owing to the extreme heat.

The business session was short, and was immediately followed by the reports of those who attended the State Meeting at Decatur.

The program was opened with the report of the delegate, Dr. R. J. Christie. He was followed by the alternate Dr. D. G. Stine.

The secretary told about what took place at the Secretaries' Conference, and Dr. C. D. Center, Councilor for this district, spoke about the Councilors' meeting. Drs. Nickerson, Wells and Koch spoke about the scientific sessions, discussed papers read at the State meeting, etc.

Then we adjourned to Hotel Newcomb for lunch.

ELIZABETH B. BALL, Secty.

COOK COUNTY.

Chicago Medical Society.

REGULAR MEETING, MAY 27, 1914.

1. Demonstration of a Universal Extension Apparatus Applied to a Surgical Bed, Carl G. Swenson.
2. Edema, C. Hubart Lovewell.
3. A New Method of Treating Local Infections, F. G. Dyas.
4. Decapsulation of the Kidney for the Cure of Chronic Bright's Disease, Daniel J. Lynch.
5. The Non-Surgical Treatment of Goitre, W. A. Gray.

Discussion, A. J. Ochsner.

REGULAR MEETING, JUNE 3, 1914.

1. Autocondensation in the Reduction of High Blood Pressure, Noble M. Eberhart.
2. The Relationship of Apparently Healthy Tonsils to Rheumatic Affections, J. Z. Bergeron.
3. Infectious Nature of Cancer; A Preliminary Report of Six Year's Continuous Research Work, H. W. Ablemann.

REGULAR MEETING, JUNE 10, 1914.

1. Myositis Ossificans, following a single Trauma, Paul Olliver.
2. Latent Atypical Malaria Complicating the Puerperium, M. J. Seifert.
3. New Toxine, J. T. Hall.

ANNUAL MEETING, JUNE 17, 1914.

The results of the election of officers was announced as follows: President-elect, Charles J. Whalen; Secretary, Charles E. Humiston; Councilors at large, Thomas A. Hogan, Sadie Bay Adair, K. A. Zurawski, Milton H. Mack, M. J. Seifert and W. T. Mefford.

ENGLEWOOD BRANCH.

The June meeting of the Englewood Branch was held on the evening of June 2, 1914. Being the last meeting of the year it was a smoker and was held at the Stock Yards Inn.

It was an evening of sociability, a time for relaxation and recreation, an hour for good friends to get together and enjoy a well earned good time, and a MIGHTY GOOD TIME IT PROVED TO BE.

Englewood Branch has always appreciated the value of sociable meetings of this kind, realizing that in this way the feeling of goodfellowship is promoted, which is so essential to the hearty co-operation of all our members to make the branch a success.

The evening was one round of pleasure and every

one of the one hundred and forty present voted the affair a huge success.

To start the ball a-rolling the members and our friends from other branches enjoyed the first (and let us hope only) presentation of the Great Modern comedy entitled:

THIRTY MINUTES IN COURT.

Scene—The court room of the Hon. Judge Huffnagel Rumhouser.

Time—June, 1914.

Official Docket—

First—Trial of a Divorce Case.

Second—Breach of Promise Suit.

CAST OF CHARACTERS.

Hon. Judge Huffnagel Rumhouser...Anthony Weber
Attorney, Catchem Going.....J. A. Waska

Miss Dottie Dimple DoitnowC. Papik
Miss Abigail Nevertouched.....C. S. Myers

To attempt to tell you how good the play was, how well the actors took their part, how hard the audience laughed and how well everyone was pleased would be impossible. It started with a scream, ended with a howl and was a laugh all the way through.

Great credit is due the members of this now famous comedy club, likewise to the chairman of the program committee, Dr. Carl Langer and to our genial, hard-working and untiring president, Dr. Julius H. Hess.

Thus Englewood has closed its year,

And crowned it all with great success.

Will next be better? We have no fear,

Our members all will answer YES.

Englewood's watchwood is progression,

It knows not the meaning of retrogression.

ARTHUR G. BOSLER, Secretary.



Attorney, Catchem Coming.....C. Hubart Lovewell
Bailiff, Patrick Ignatius (Cheesy) Casey.....

.....G. Henry Mundt
Count Laugholet de Boughie.....J. T. U. Renaud
Countess Bedelia Mulligan de Boughie.....

.....John W. McGuire
George Washington, Thomas Jefferson, Andrew
Jackson, Henry Clay Bubbins.....W. R. Abbott
Miss Asafoetida Apple Blossom Smiff.....

.....P. C. W. Johannes
Hippocrates Neosalvarsan Clapp, M. D., Ph. B.,
B. S., D. D. S., A. S. S., A. P. A....M. L. Mendel

JURORS.

Hezekiah StoopangofetchitH. H. Mather
Percival PennobscotW. S. Bougher
Albert Edward Longbow.....E. R. Reynolds
Miss Sophronisba SpankhurstF. J. Lesemann

1914

CHICAGO MEDICAL SOCIETY

Dr. James A. Clark, Pres.

Dr. Charles J. Whalen, Pres. Elect.

Dr. C. E. Humiston, Sec'y.

PROGRAM

MEETING OF ALIENIST AND NEUROLOGIST
FOR THE DISCUSSION OF MENTAL DISEASES
IN THEIR VARIOUS PHASES.

July 13, 14, 15, 16, 17, 1914.

Headquarters, Hotel La Salle. Meetings and Social
Sessions Held at This Hotel.

DR. HARRISON L. METTLER, Chairman.

DR. W. T. MEFFORD, Secretary.

Monday Morning, 9 A. M., July 13, 1913.

Hotel La Salle.

Address by the Chairman. Dr. Harrison L. Mettler.

Welcome Address by the President of Chicago Medical Society. Dr. James A. Clark.

Address. Judge Harry Olson, Chief Justice, Municipal Court.

Society is largely responsible for the most potent factor in nervous and most mental diseases. Dr. J. C. King, Atlanta, Ga.

The Duty of the State to Protect Society from Defective Individuals. Dr. W. S. Lindsay, Topeka, Kan.

Man's Tendency Toward Aberration. Dr. Meyer Solomon, Chicago, Ill.

Psychiatry in its Relation to Medicine. Dr. Chas. Ricksher, Lake Geneva, Wis.

Essentials in the Diagnosis of Insanity. Dr. Julius Grinker, Chicago, Ill.

Monday Afternoon, 2 P. M.

Hotel La Salle.

Bilateral Peripheral Facial Palsy. Dr. T. B. Throckmorton, Des Moines, Ia.

The Need for Training Schools for Nurses in Hospitals for the Insane. Dr. E. B. Busse, Madison, Ind.

Occupations and Amusements in Hospitals for the Insane. Dr. F. L. Peddicord, Lakeland, Ky.

An experience in Pedagogy Among the Chronic Insane. Dr. E. F. Leonard, Chicago, Ill.

The Pathological Characteristics of the Habitual Criminal. Dr. Paul E. Bowers, Michigan City, Ind.

Brain Heredity and Hygiene. Dr. J. T. Searcy, Tuscaloosa, Ala.

The Inebriate: the need and work done and contemplated by the State Hospital for Inebriates. Dr. Geo. Donohue, Knoxville, Ia.

Chronic Alcoholism. Dr. Chas. Read, Chicago, Ill.

Tuesday Morning, 9 A. M.

Hotel La Salle.

The Colloidal Gold Chloride Test in Psychiatry. Dr. W. F. Lorenz, Mendota, Wis.

The Emotional Factor in the Etiology of Suicide, Criminality, Insanity and Mortality. Dr. Henry S. Munroe, Omaha, Nebr.

Insight in Cases recovered from Manic Depressive Attacks. Dr. S. N. Clark, Chicago, Ill.

Double nucleated Purkinje Cells of the Cerebellum and their significance in the Histopathological Differentiation of Juvenile General Paresis from Adult General Paralysis of the Insane. Dr. S. C. Fuller, Westborough, Mass.

Fight Against Degeneracy in Wisconsin. Dr. Francis I. Drake, Waupun, Wis.

The relation of the Cerebellum to the Labyrinth. Dr. W. L. Long, Cherokee, Ia.

Mental Diseases in Famous Chess Players. Dr. Louis Miller, Toledo, O.

Tuesday Afternoon, 2 P. M.

Hotel La Salle.

Psychoanalysis: the field of its theoretical applicability and some of its practical limitations. Dr. J. S. Van Teslaar, Boston, Mass.

The Prevention of Nervous and Mental Diseases. Dr. C. F. Neu, Indianapolis, Ind.

Report of committee on "Prevention of Insanity."

The Commitment of the Insane in the United States. Dr. Theo. A. Diller, Pittsburgh, Pa.

Dementia Praecox. Dr. H. A. Lindsay, Independence, Ia.

The Abderhalden Test in Dementia Praecox. Dr. Albert E. Sterne, Indianapolis, Ind.

Dementia Praecox in the last two years; diagnosis and treatment. Dr. Bayard Holmes, Chicago, Ill.

Demonstration of the Abderhalden Test in Dementia Praecox. Dr. Adolph Gehrmann, Chicago, Ill.

Wednesday Morning, 9 A. M.

Psychopathic Hospital, Harrison and Wood Streets.

The New Cook County Psychopathic Hospital. Dr. H. I. Davis, Chicago, Ill.

Pellagra. Dr. E. L. Parker, Excelsior Springs, Mo.

Clinical Observation on the Psychosis Accompanying Pellagra. Dr. A. A. Thurlows, Norman, Okla.

What Are the Indications for Restraint? Dr. Henry Gahagen, Elgin, Ill.

The Conservation of our Mental Forces. Dr. Edward A. Foley, Jacksonville, Ill.

The Paranoia and Homosexuality. Dr. Isador H. Coriat, Boston, Mass.

Wednesday Afternoon, 2 P.M.

Hotel La Salle.

The Loss and Waste from Inconsistent Planning of State Institutions for the Insane. Dr. Richard Dewey, Wauwatosa, Wis.

Report of Committee on what Constitutes a Modern Hospital and the Duties of the State to the Physician who makes the Care of the Insane and Mental Defectives a Specialty.

Psychogenic Neuroses. Dr. Sidney D. Wilgus, Rockford, Ill.

Segregation or Sterilization of Mental Defectives. Dr. Mary Pogue, Lake Geneva, Wis.

A Study of Two Hundred and Eighty-two Sexual Criminals. Dr. Rock Sleyster, Waupun, Wis.

Medico Psychological Work in Court. Dr. Wm. Healy, Chicago, Ill.

The Proposed Changes in the Introduction of Expert Medical Testimony of the Council on Public Health A. M. A. and the American Institute of Criminal Law. Dr. Harold N. Moyer, Chicago, Ill.

Thursday Morning, 9 A. M.

Hotel La Salle.

The Prevention of Epilepsy. Dr. O. W. Hubbard, Parsons, Kan.

Epileptoid Convulsions in Alcoholics in Their Re-

lation to Genuine Epilepsy. Dr. Edwin Katzen Ellenbogen, Trenton, N. J.

Public and Private Care of Epileptics in the United States and Canada. Mr. Wm. C. Graves.

Ex-president of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics, Chicago, Ill.

Social Aspects of Epilepsy. Mr. Maurice D. Lynch. Chairman of Special Appeals Committee, United Charities, West Side, Chicago, Ill.

The Coagulation Time of the Blood in Epileptics. Dr. D. A. Thom, Palmer, Mass.

Committee Report on the Prevention of Epilepsy and the Care of Epileptics.

Discussion: Dr. Geo. E. Zeller, Springfield, Ill.

Study of a Case of Infatilisim with Hypophyseal Insufficiency. Dr. E. B. McCready, Pittsburgh, Pa.

Thursday Afternoon, 2 P. M.

Hotel La Salle.

Some Studies on the Sources and Causes of Mental Deficiency. Dr. A. C. Rogers, Faribault, Minn.

Some Causes of Mental Deficiency. Dr. Max Groszmann, Plainfield, N. J.

Organic Brain Lesions in Mental Defectives. Dr. W. J. Hickson, Chicago, Ill.

The Relation of Tonsils and Adenoids to Mental Deficiency. Dr. A. M. Corwin, Chicago, Ill.

The Relation of Eyes to Mental Deficiency. Dr. Oscar Dodd, Chicago, Ill.

The Feeble Minded, their Environment and Social Relation. Dr. A. C. Kehoe, Frankfort, Ky.

A Summary of Nervous and Mental Findings in Feeble-Minded Children. Dr. J. J. Mendelsohn, Lincoln, Ill.

Friday Morning, 9 A. M.

La Salle Hotel

Microscopical Demonstration of Live and Stained Spirochaete Pallida. Drs. C. E. Sidwell and Louis Smith, Chicago.

The Relation of Syphilis to the Production of Feeble Mindedness. Dr. Geo. Bliss, Fort Wayne, Ind.

Control of Venereal Diseases. Dr. W. A. Evans, Chicago, Ill.

Syphilis as it Concerns the Internist. Drs. W. J. Butler and W. T. Mefford, Chicago, Ill.

The Importance of the Early Diagnosis of Locomotor Ataxia. Dr. Ralph Hamill, Chicago, Ill.

Transient Symptoms in Pre-paresis. Dr. B. F. Williams, Lincoln, Nebr.

Friday Afternoon, 2 P. M.

Hotel La Salle.

The Treatment of Cerebro-Spinal Syphilis by Salvarsan. Dr. Henry A. Cotton, Trenton, N. J.

The Prophylaxis and Treatment of General Paralysis, Locomotor Ataxia and other Forms of Syphilis of the Central Nervous System. Dr. G. W. McCaskey, Fort Wayne, Ind.

The Intra-Spinal Administration of Neosalvarsan,

Using the Patient's own Spinal Fluid as a Vehicle. Dr. Geo. W. Hall, Chicago, Ill.

The Modern Treatment of Syphilis. Dr. C. B. Corbus, Chicago, Ill.

The Present Question of the Treatment of Syphilis. Dr. Wm. Pusey, Chicago, Ill.

Salvarsan in the Treatment of Syphilis. Dr. John S. Nagel, Chicago, Ill.

THE ILLINOIS STATE SURGICAL SOCIETY HELD ITS FIRST REGULAR MEETING AT DECATUR, ILL., MAY 19, 1914

AT 10:30 A. M.

ORDER OF BUSINESS.

The by-laws and constitution were read to the society; motion made and seconded that they be adopted. Carried.

Dr. Ferguson of New York was then called upon to deliver an essay on "Anesthesia." (Paper was read before the society).

Dr. C. E. Humiston made a motion thanking Dr. Ferguson "on his masterful paper with which he had honored us this morning." Motion seconded and carried. Dr. Ferguson receives society's thanks.

Dr. C. E. Humiston: *Chairman, Gentlemen:* It is not my purpose to make this a formal address, that is, my vocal cords were not made for such intention, but there are a few things which I desire to emphasize at this opportune time.

Most of us can remember when practically all of the major surgery of the country was done by a few. However, times have changed. At every crossroad, country town or hamlet, there are good surgeons who are engaged in its practice. Now, as these men are engaged in the practice of the art and science of surgery, they should form an organization to which they may belong, meet other members of the profession, and keep in touch with the progress of the work. That is the idea back of the organization of the State Surgical Society.

The practice of surgery and the practice of medicine we all know is unfortunate in some ways. It is a solitary labor. The man who practices medicine, practices largely alone and nobody present except the patient and nurse.

There are not organizations enough to bring the doctors together as often as they should be brought together and keep them acquainted with each other and the progress of the work. It would be hard to have too many organizations and there is a good opening in the field for the State Surgical Society, made up along the lines of the State Medical Society.

Very much good can come of such a society. It should be democratic and popular, open to anyone who can do surgery and there must be a competent surgeon in every community to serve the public as it should be done.

A man who has a strangulated hernia, 300 miles from a suitable surgical center, as existed in the re-

mote past, had very little show for his life. At present, it would be taken care of on the dining room table by the nearest doctor and his life would be saved.

That man who can do that work should belong to a surgical society and have a chance to discuss such cases and to hear what others are doing.

Now, the need of this is hardly necessary to voice; it appeals to everyone and the idea that is back of it is worthy of encouragement. Of the necessity of such a society there is no doubt. A society which will be large enough and competent enough to have influence on legislature, which will pass laws beneficial to the surgical public, is of interest to the surgeons of Illinois, who should see that the people of this state receive the surgical privileges and attentions to which they are entitled and which cannot come, except by disseminating and making it popular and democratic.

Dr. Griswold of Peru, Ind., was next called upon for his views.

Dr. Griswold: *President, gentlemen:* I did not know there was a society meeting at Decatur, until I saw a banner across the depot platform, announcing the Illinois State Medical Society, but nevertheless, I am pleased to be with you.

What is the primary object of medicine? It is to serve the people, the whole people, in the outskirts as well as in the congested districts where people can pay money for good work. Some cannot pay high prices, but they must have some assistance. Now, are we going to allow the higher trend of medical education and restrictions withhold from these people what the preamble of the Constitution of the United States guarantees?

The man who lives in the tenement house districts of Chicago needs the doctor just as much as one on Michigan Boulevard. With higher education in the next generation, where is the doctor with his higher college and medical education, with his long hospital experience, where is the doctor who will go into the slums of Chicago with his high minded woman and children, go down to make his home? Would it not be one of the most positive evidences of the extreme missionary spirit, as much as the man who goes to South Africa and mixes with the blacks?

The man in the outskirts of your country district, what is he going to do? We know, gentlemen, as a matter of practical experience, without casting any reflection whatever on the men who stand at the heights of the medical profession, that these men are doing out on the kitchen table just as successful surgery in almost every field of surgery, as the men in Chicago, New York and other places.

When a man operates on the kitchen table for strangulated hernia and saves the life, he has done just as successful a surgical operation as Dr. Murphy or anyone else could do in any hospital in Chicago.

And we know from practical experience that these things can be done everywhere. It is much to the credit of the country doctor that he can do this. However if it results unfortunately, the gentleman at Chicago is never criticized, but the man at the outskirts,

who has given as scientific service as the other man could have given under like circumstances is criticized. The man who is in the outskirts is the better soldier than the man in Chicago, doing the same thing every day.

Higher education is all right. It is the proper thing, but we must remember this: It is not necessary to pass laws to get higher education. We will always have higher education, but we must not deprive the individual man, the cowboy, who has brains and ability to work, but has no money to spend ten or fifteen years in college or medical school, of his opportunity and force him to continue at the plow, while one less gifted but born with a golden spoon in his mouth, is favored.

Where do the best surgeons of this country come from? They come from the lower walks of life and they grew up to be the greatest surgeons and never had an A. M. or B. M. after their names. I have no objection to a degree if you can get it, but why take away from the public a man who cannot get it, one that may make a better surgeon than the degreed man?

Next in order was a speech by Dr. J. W. Hamilton of Mt. Vernon, Ill. (Paper read before society. No discussion.)

Motion was next made for the election of officers, seconded and carried.

NOMINATIONS.

President, J. W. Hamilton, Mt. Vernon. (Elected unanimously).

Vice-president, Emil Windmueller, Woodstock, Ill. (Elected unanimously).

Dr. Humiston nominated to secretary and treasurer, but declined.

Secretary, J. W. MacDonald, Aurora, Ill. (unanimously).

Treasurer, J. C. Stubbs, Chicago, Ill. (unanimously).

The temporary president, Dr. Windmueller then announced that there were to be elected 9 members to board of directors, each to serve a three-year term; 3 to be elected for 3-year periods, 3 for 2-year periods, and 3 for 1-year period from date.

It was then moved, seconded and carried that a nominating committee be appointed to arrange for board of directors, and to have such names ready by 1:30 when session was to reconvene.

Dr. Ferguson was then proposed as an honorary member by Dr. C. E. Humiston. Motion seconded and carried.

Motion made to adjourn until 1:30 P. M. Seconded and carried.

May 19, 1914. 1:30 P. M.

President called meeting to order. Read following names on Board of Directors:

J. C. Stubbs, J. H. Walsh, Hugo Betz, C. B. King, J. V. Fowler, all of Chicago; E. B. Sloan, Bloomington; F. Buckmaster, Effingham; Don Deal, Springfield; Frank Sibley, Carmi.

Motion made and seconded that unanimous ballot for these candidates be cast. Carried.

Dr. Emrick called upon for a few words.

In getting a design for this society's pin, I went to the firm of W. C. Kearn & Co., and they made dies, these dies costing us nothing. Their money will come out of the pin sale. Therefore, I think it no more than right that we make them the official jewelers of the Illinois State Surgical Society.

Motion made and seconded that Dr. Emrick's suggestion be adopted. Carried.

Dr. J. C. Stubbs: I move that we make Dr. Griswold of Peru, Ind., an honorary member. Seconded and carried.

Dr. J. H. Walsh: I move that the two honorary members be presented with an official pin of the society. Seconded and carried.

President appointed Dr. Emrick to see to the presentation of pins.

Dr. Ferguson: I greatly appreciate the honor of being made a member of this society and heartily thank the society for such an honor.

Motion made that board of directors decide on time of next meeting. Seconded and carried.

Dr. MacDonald, secretary: I want to urge each and every member of this society not to be a passive onlooker, but to work for the welfare of the society and especially for the increasement of the membership.

Dr. King: I will ask that each member put some application blanks in his pocket. My reason for not mailing notices to each man in the state concerning the society was the lack of information as to who would be suitable for this organization.

Motion made for adjournment, seconded and carried.

JOINT MEETING OF THE CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY AND THE ST. LOUIS LARYNGOLOGICAL SOCIETY, NOVEMBER 29, 1913.

Dr. George E. Shambaugh of Chicago read a paper on

THE ROLE OF THE SEMICIRCULAR CANALS IN THE FUNCTION OF EQUILIBRIUM.

Abstract: The semicircular canals have two more or less distinct functions. From them we get our sense of turning motions and in addition the canals play an important part in preserving the equilibrium of the body. This latter function is dependent upon what Ewald described as labyrinth tonus. This consists of a constant stream of impulses from the semicircular canals to the various skeletal muscles, keeping them in a constant state of stimulation. Ewald believed that these impulses originated as the result of ciliary motion in the projecting hairs of the haircells of the cristae. We know now that these hairs are imbedded in the cupula, which does not permit of such ciliary motion. Breuer believed that the tonus

impulses emanate from the stimulation of the haircells, which he believed was due to displacement of the cupula, as the result of constant endolymph currents. There seems to be no ground for believing that such constant endolymph currents exist. Barany believed that these tonus impulses to the skeletal muscles are derived from tonus centers located in the region of Dieter's nucleus. The tonus of these centers is in part at least kept up by impulses coming from the haircells of the crista. What the origin of the stimulation of the haircells may be, to cause this tonus, Barany does not suggest.

Dr. Shambaugh's view regarding the origin of labyrinth tonus is that these impulses emanate from the haircells of the cristae, the result of constant stimulation of the haircells, occasioned by pulsations in the labyrinth produced by cardiac pulsation.

It is known that each semicircular canal stimulates only the muscles, the movements of which lie in the plane of this canal. A movement of the endolymph in one direction produces movement toward the same side; a movement of endolymph in the opposite direction produces movement to the opposite side. The stronger impulse from each canal is produced by those endolymph currents which cause a movement toward the opposite side. The haircells on one side of the crista are stimulated by a movement of endolymph in one direction; the haircells on the opposite side of the same crista are stimulated by an endolymph current in the opposite direction.

With this theory of the origin of labyrinth tonus, it is evident that from each semicircular canal emanate constant tonus impulses which tend to cause movement in the two directions: the stronger impulses are always those which produce motion toward the opposite side. A constant state of equilibrium is preserved because opposing impulses emanate from the several semicircular canals in the two labyrinths. This equilibrium can be disturbed in two ways, either by increasing the tonus of one labyrinth or by suppressing this tonus. The tonus is increased in those cases where there is a congestion of the labyrinth, associated with very slight alteration in the labyrinth fluids; at any rate not enough alteration to depress materially the activity of the haircells. The result of this increase in the labyrinth tonus is that the patient will have a tendency to fall toward the opposite side. At the same time the nystagmus will be directed toward the affected side.

A depression of labyrinth tonus is accomplished by those inflammatory conditions which alter decidedly the labyrinth fluids so as to depress or completely destroy, as in diffuse suppuration, the activity of the haircells of the cristae. In these cases the normal tonus from the opposite side, continuing to act without the restraint of impulses from the affected ear, cause the patient to fall toward the affected side; at the same time spontaneous nystagmus results, which, of course, is directed toward the normal ear.

DISCUSSION.

Dr. J. Gordon Wilson, of Chicago, said that there have been from time to time several explanations of the *modus operandi* of the influence which the internal ear exercises on muscle movement, and which Ewald called labyrinthine tonus. Ewald's idea was that the hairs of the maculae and cristae are always active and keep the endolymph in movement. Further, that a movement of the endolymph produced by some other power which would increase or retard the activity of these cilia would influence muscle tonus.

Two obvious objections present themselves to Dr. Shambaugh's hypothesis. First, so far we have no anatomical proof that the hairs differ in the two sides of this crista in any way whatever. Further, would we not have to reverse the hypothetical strain in the various canals to bring it into line with the physiological phenomena since the maximum current in the horizontal differs in the direction from maximum currents in the superior. Again, the explanation offered can only apply to animals with a canalicular system and cannot be universally true of organs of equilibrium situated in the head segment. Thus, the squid has a well organized equilibrium organ called the labyrinth in the head segment, with three crista which lie in the three dimensions of space, but within one sac. Here it is obvious that Dr. Shambaugh's hypothesis is not adequate to explain the phenomena of tonus movement.

Dr. Shambaugh in closing, said there are a great many questions in connection with labyrinth tonus that had not been touched upon in the discussion. It is important that one should have a satisfactory hypothesis to explain the clinical phenomena resulting from a disturbance of labyrinth tonus. A great variety of pathological conditions, both in the labyrinth and intracranially may arise and disturb the normal tonus. A very important factor in preserving equilibrium is the extra-labyrinth tonus, which arises from afferent impulses other than those from the labyrinth. This he had not touched upon at all in my paper.

The question had been asked whether otologists are agreed that disturbances of equilibrium are dependent upon pathological conditions in the labyrinth. The interrogator seems to be under the impression that the accepted idea is that the cerebellum presides over this function. In reply, he would state simply that he does not believe there is any difference of opinion, either among otologists or physiologists regarding the important rôle taken by the vestibular apparatus in preserving the equilibrium of the body. Of course, any intracranial disturbance of the tract of the vestibular nerve produces the same sort of disturbance of equilibrium as that which arises from alteration in the end-organ in the labyrinth.

SYPHILIS OF THE EAR.

(Abstract.)

Dr. Otto J. Stein, of Chicago, said that syphilis of the ear was recognized in the early history of this

disease, but the epoch-making discovery of Shaudinn, in 1905, of the *spirocheta pallida* as the etiologic agent of this disease, as well as the cultivation of the *spirocheta pallida* by Noguchi, the complement fixation reaction of the blood after Wassermann, Noguchi's luetin cutaneous test, the determination of an increase of globulin after Nonne, the lymphocytosis and Wassermann of the spinal fluid, Noguchi's recent observations on the presence of the *spirocheta pallida* in certain cerebral diseases, like general paresis, and, finally, the Ehrlich-Hata discovery, are all of the greatest aid to the clinical diagnosis, as well as being means of control in the treatment of syphilis.

It is elementary knowledge that all the tissues of the ear may be affected by this disease—skin, periosteum, bone, cartilage, mucous membrane, nerves and vessels, and that the various stages of the disease may even attack the different parts of the ear.

Dr. Stein discussed the subject of syphilis of the external ear, middle ear, inner ear and intracranial region. Observations of syphilitic lesions about the external ear vary considerably, owing, perhaps, in some cases, to the class of material available, and, again, to a neglect in recognizing the probabilities of this disease in all of its protean types in this particular region. In cases of this kind the chancre or ulcer durum is hard and infiltrated, usually single and umbilicated. It may occur upon any part of the external ear, but most commonly is found about the external meatus. Lues of the drum occurs as a papule or minute gumma, and readily disappears under proper treatment. If not treated, it usually softens and perforates into the middle ear cavity, creating a suppurative condition there.

The secondaries are, as a rule, in the form of condylomas situated at the posterior auricular attachment, especially in young people, but occasionally, when found about the entrance of the meatus, they resemble granulations or polypi.

The tertiaries form an interesting class of external ear lues. There is a type that is due to a periostitis of the bony canal—not to be confused with a gumma, and which, by the pressure exerted, causes considerable pain, even on movement of the lower jaw, as in eating.

Occasionally gummata of the mastoid are seen. Bruehl recently reported such a case. These may disappear under treatment or they may disintegrate and create considerable destruction.

If one investigated thoroughly into the etiology of all middle ear cases presenting at a large clinic, the frequency with which lues appear would create no little astonishment.

In the acquired form of inner ear lues the disease usually appears at the end of the secondaries, although it has been noted as early as one week after recognition of the chancre, and again in some cases delayed for years. The ear symptoms are like those of any other nerve deafness, with or without the vestibular symptoms. The deafness is rapid in its progress and soon becomes quite profound.

The inherited form of inner ear lues may appear at any time of life, from infancy to middle age and past, but the far greater number are observed first between the eighth and sixteenth years. The deafness in these cases comes on quite suddenly, in fact, often over-night or after some prolonged exposure or exertion. It is usually bilateral, and, according to Fraser, frequently associated with ozena.

In the diagnosis one may consider a rapid onset, profound deafness, or at least of severe degree, slight or absence of tinnitus, associated protean manifestation of cerebro-cerebellar character, normal drum or open tubes, as strongly presumptive of intracranial lues. As additional evidence we have a facial palsy that may improve under treatment; also such other direct evidence of the disease as pegged teeth and scarred eyes, the blood and spinal fluid reaction to the Wassermann test and the skin reaction to the Noguchi test.

In the differentiation we must particularly keep in mind the possibility of leukemia, pernicious anemia, diabetes, rheumatism, digestive disturbances, arteriosclerosis, aneurysm of the basilar artery, neoplasm, traumatism, toxic neuritis, occupational causes, hysteria and malingering.

Regarding treatment with salvarsan, it is his belief, based upon the experiences he has had with the use of this drug, that lues of the ear responds favorably to the action of this remedy, in both the acquired and inherited forms, provided treatment is commenced within the first few weeks, better if in the first week, of its manifestation; and also if pushed energetically and supplemented by the use of mercury and K. I. The so-called neuro-recidives that have attracted so much attention lately have but very seldom occurred in his cases, and in no case was there lasting involvement of the nerves. He is of the same opinion as Haike and Wechselmann that the superior activity of salvarsan over mercury in penetrating the nerve structure and causing the hibernating spirochetes to "move on" may account for these nerve symptoms, which would most likely occur later on if left to other forms of treatment, because all other forms of treatment seem not to reach the nerve stations. Perhaps in some cases the condition is simple Herxheimer's phenomenon, but he could not attribute it to any selected toxic action of the drug.

DISCUSSION.

Dr. Joseph C. Beck, of Chicago, thought the St. Louis men ought to be given the preference in discussing these papers. There was one point in particular in Dr. Stein's paper that he wanted to emphasize, and that was the condition of syphilis in the tube. One cannot too strongly keep that in mind in conditions of deep ulcers of the pharynx which occur in the latter stages of syphilis. One should not allow the tube to close during the healing process, and the practical method to prevent obliteration is to pass graduated Eustachian bougies. He has had such cases

to deal with and believes that by this method of bougie dilatation complete obliteration of the tube was prevented.

Another point of interest to him was the pathology of the mastoid. He had saved several bone chips from the mastoid of a woman who had had four previous operations and microscopical examination revealed the characteristics of syphilitic osteitis. The patient recovered after having been treated by anti-leucic measures.

It is well understood, as the Doctor brought out, that there is a swelling around the nerves following the injection of salvarsan, due to a liberation of syphilo-toxins, which bring about a temporary edema known as Herxheimer's reaction. We also know that other drugs, such as mercury will do the same thing, though not as frequently. There results a pressure within the long canals, and facial paralysis, deafness and blindness may ensue. This means that more salvarsan is indicated, also more mercury, large doses of K. I., and elimination by means of pilocarpin in order to bring about the desired effect.

Dr. Beck thought the paper of Dr. Stein one of the best contributions the profession had ever had on this subject.

Dr. H. Kahn, of Chicago, knew of one case in which a one-sided deafness resulted from one dose of salvarsan, which did not disappear after a second dose, mercurial and eliminative treatment. The patient was still deaf at the end of six months.

Dr. Louis K. Guggenheim said that there is usually doubt in cases of auditory nerve involvement following the injection of salvarsan, as to whether the condition is luetic or a result of the selective action of the arsenic preparation, and so far as he knew there is no single case reported where there is absolute certainty as to this. He recently examined a patient in whose case there was no doubt as to the absence of lues. Enormous doses of salvarsan were given, three injections within one month. Several weeks following the last injection there occurred vertigo, disturbance of equilibrium and deafness (right ear), all within eight hours after the aural complication was first noticed. The Wassermann test was negative and arsenic was found in the urine, five months after the first injection.

Dr. Robert Sonnenschein, of Chicago, called attention to the fact that Neumann, among others, states that those cases of obstinate otitis externa diffusa, in which no bacillus pyocyaneus or other distinct infectious agent can be found, should be viewed as possibly of luetic origin. In some of these cases no treatment other than an anti-luetic one is of any avail.

Dr. J. Gordon Wilson thinks it is established that organic arsenic compounds can have a definite action on the second and eighth nerves of some animals, causing vestibular irritation and blindness. Experiments have been conducted on animals which have a very easily irritated vestibular mechanism. The important point established so far is that only such

animals show the labyrinth reaction to these drugs as have this susceptible mechanism. It remains to be seen whether we can, by injuring or depressing the activity of the eighth nerve in nonsusceptible animals, produce similar labyrinthine phenomena. The pathological changes he has observed are distinct. They consist in leucocytes, exudation and rapid formation of plasma cells along the course of the eighth nerve, with changes in the vestibular nuclei.

Dr. H. W. Loeb referred to a case reported by him some time ago, of a young man who was found to have chancre. The chancre was excised and spirochetæ were present. He was given a dose of salvarsan the next day. Three weeks later, not having any further treatment, nor any other symptoms, he was attacked with nausea and nystagmus on the other side and deafness in the right ear. The nystagmus continued for some time; the deafness has never been overcome. It seemed to him that the effect could hardly be ascribed to anything but the salvarsan, since it meets with the findings of other case reports on the subject.

Dr. Opie felt that he had very little to add to the discussion. He was always impressed with the fact that the special anatomical factors in relation to pathology of such an organ as the ear have such direct bearing upon the symptomatology that the subject can only be pursued with advantage by those who are directly associated with the clinical phenomena. Further, it seems to him that such a study of pathology is one of the most important means of advancing that particular specialty.

One feature, from the standpoint of general pathology, is to him particularly interesting, namely, the fundamental reason for the location of syphilis in the ear, because the same thing applies to the location of syphilis in any part of the body, but especially in relation to syphilis of the nervous system. For example, so far as the relation of syphilis of the ear is concerned, in relation to syphilis in general paresis, here the lesion is, in part at least, a meningitis, and we might think of the localization of syphilis in the meninges or in the secondary nerves. He has wondered if the peculiarities of the fluids within the canals of the internal ear have any special features which bring them into relation to the cerebrospinal fluid.

This subject has an important bearing in relation to treatment—the penetration of various curative or protective substances in the blood and the possibility of penetration into such fluid. The difficulty of penetrating into the cerebrospinal fluid is well known. With regard to penetration into the fluids of the canal of the internal ear he has no knowledge.

Dr. Stein, in closing, said he had observed involvement of hearing immediately after the introduction of the salvarsan, but it quickly cleared up. It was possible that this remedy has a slight toxic action, as Dr. Wilson said, for the eighth nerve, but if that were true it seemed strange that among the hundred thousand cases injected and treated by this method

there are not more cases of paralysis reported. It is almost inconceivable to think there can be such a selective toxic action. He hardly felt we could take any of the cases reported, or many others of apparent permanent deafness, very seriously until we knew more about how these cases were treated. It is necessary to know the exact details of the amount used, the method employed, and the period over which they were treated. Upon all this hinged the recovery from deafness.

The discussion had been confined almost entirely to the salvarsan feature of the paper, which he had wanted to eliminate as much as possible.

A SHORT STUDY IN THE ETIOLOGY OF NASAL HYDRORRHEA, WITH CASE REPORTS.

(Abstract.)

Dr. Harry Kahn, of Chicago, said that hydrorrhea nasalis is one of the dark chapters of rhinology. It is a subject usually dismissed with a few words or a paragraph by the textbook writers. The later German textbooks, however, notably Chairi and Zarniko, pay more attention to the subject. Up to recent times this question has been merely a speculative one, and all authors agree that the disease is caused by a nervous disturbance causing, as Grayson says, a lack of balance between the arterial and venous circulations.

There are two types of this affection that present in part the same symptoms, but whose anatomic pathological basis is entirely different. These are: (a) The cerebro-spinal type, and (b) the nasal type. In the former there is a definite anatomic loss of continuity in the skull; a hiatus is formed, through which the fluid pours into the nasal cavity. In the latter, pure nasal type, which may vary from the hay fever or paroxysmal rhinitis to the almost painless, nonirritated variety, there is an abnormal volume of watery discharge from the mucous linings of the nose. Between these extremes lie the vast number of intermediate cases, all of which are due to some change in the mucous membrane. On examination of case records and searching the literature, one is struck by the fact that this is a disease of adult life or late youth. According to the author's experience, there has been a preponderance of females, although St. Clair Thompson thinks that males and females are affected alike. Birkett has enumerated the following predisposing factors: A neurotic temperament implying susceptibility; a local morbid condition of the nasal mucous membrane, which may or may not be associated with gross pathological structures; an irritant acting without or within.

One is led to believe, from animal experiments, that hydrorrhea nasalis is a disturbance of the sympathetic nerve fibers in the nasal mucous membrane, caused by some irritant or by nervous shock similar to a tormented animal, giving rise to a change in the

function of the fibers and causing vaso-dilatation and extravasation of a watery fluid.

The author reported two cases in detail, which were cited in proof of the statement that there is a distinct nervous element in these cases. The first case was that of a girl who was tormented by her work and the realization of her immense responsibility. In the second case the rhinorrhea followed in a short time after the death of a remaining parent, throwing on an erstwhile care-free girl the support and responsibility of a family. One case resulted in a rhinitis vasomotoria, and the second in rhinitis edematosa, both of the same class but of different variety.

In conclusion, he wished to assert that instead of saying there *may be* we should say that *there is a nervous element* in these cases, and that in all probability this unpleasant disease is caused by a change in the reaction of the sympathetic fibers distributed to the nasal mucous membrane.

DISCUSSION.

Dr. Greenfield Sluder, of St. Louis, had been greatly interested in the paper, as this subject had attracted him for many years. He agreed with the essayist that it is in all probability an involvement of the sympathetic, but where that involvement lies is difficult to ascertain. Some ten years ago Dr. Stein began the injection of the posterior nerve supply, which is tantamount to the ganglion, and also the anterior nerve supply. The speaker had not seen him for a long time to find if his ideas were the same, but he believed they were unchanged. At a point further back this same sympathetic supply is exposed in the sphenoidal sinus, and one of the most intractable of these cases he had seen was one of sphenoidal empyema. In this patient the intrasinus injection of a five per cent solution of salicylate of soda proved to be almost magic. It checked the sneezing and controlled the swelling. The speaker believes these cases to be of peripheral origin.

Dr. O. J. Stein, of Chicago, became interested in the subject of nasal hydrorrhea some years ago when we were working with alcohol injections in the attempt to treat hyperesthetic rhinitis, at which time he extended his efforts to checking nasal hydrorrhea instead of confining them to the hyperesthetic type of rhinitis. The first case in which he tried it was that of a woman who had been exposed to dust from a long automobile ride, which produced a very severe attack of watery discharge from both nostrils, and swelling about the eyes. She was treated by the injection of the anterior nasal nerve with an eighty-five per cent. alcoholic solution. There was nothing else in it. There was immediately the characteristic reaction of severe pain following the course of the distribution of these nerves, and from that moment there was no further discharge. In this case he particularly avoided any suggestion whatever as to the effect of the treatment. He was anxious to find out whether it would have any beneficial effect or not, so he made no promise. The result lasted one month, when she returned with

a slight attack. The following day she was injected again and that terminated the trouble. He has had occasion to inject a few more cases of this disorder in the same way, using a milder solution of alcohol, sixty-five per cent., and in all but three of the cases it has been successful. He believes that some of these cases are caused by such primary disturbances as polypi hidden away, such as occurred in one of his cases. Since hearing Haskins' paper on the relationship between the sympathetic nerve and the fifth nerve he has become a convert to the belief that this disorder is purely one of sympathetic character, or a vasomotor disturbance.

Dr. Scholz agreed with Dr. Kahn in his assumption that nasal hydrorrhea is the result of a disturbance in the nervous system. In an individual with a hypersensitive nervous system, a very slight point of irritation in the nose is sufficient to precipitate the nasal phase of the disease. While he believes that nasal hydrorrhea rests upon a disturbance in the nervous system, he still feels that there may be some general ailment to account for the latter, and we must not lose sight of this fact in the treatment of these cases. He reported a case in detail to corroborate this view.

Dr. Kahn, in closing, said he had purposely omitted the hyperplastic ethmoiditis because that *per se* does cause a hydrorrhea. His paper had dealt only with cases with no anatomic pathologic lesion other than in the mucous membrane.

ESOPHAGOSCOPY.

(Abstract.)

Dr. Stanton A. Friedberg, of Chicago, said that in no other branch of the specialty of laryngology was the interest so keen as in esophagoscopy, and in no other branch is there greater possibility for investigation of diseased conditions. In spite of the labors of many in the past few years, we are still working in a practically unexplored field, and years must elapse before a proper interpretation may be placed upon some of the results that are being obtained and some of the conditions that are being determined. At present the question of the presence and removal of foreign bodies occupies the greater interest. The reason for this may be readily perceived. The visible evidence of an accomplished effort is a source of satisfaction to anyone, and the psychic influence upon a patient or other interested parties at the sight of the cause of trouble is usually sufficient to evoke unstinted declarations of appreciation. But there is another important phase of this work which must not be overlooked. Ramming a rigid tube through the larynx or esophagus does not constitute endoscopy. The first thing one must learn is that the utmost gentleness of manipulation must be employed. The use of force is never justifiable in this work, and is a technical error.

The indications for esophagoscopy may be broadly included under the heads of diagnosis and treatment.

Under the latter would be placed the removal of foreign bodies.

Nearly all of the cases requiring operation for foreign bodies that have come under the author's observation have had the offending substance in practically the same location, commonly in the cervical portion of the esophagus, or, in other words, between the lower border of the cricoid cartilage and the level of the suprasternal notch. Why this should be so is not absolutely clear in his mind, but there is hardly any doubt that the explanation must be sought on physiological and anatomical grounds.

The question of the removal of these foreign bodies situated in the upper part is not so simple at times as one would be led to suppose. Their apparent accessibility, so far as distance is concerned, may not possess any advantage unless one is familiar with just what may occur in this situation. All who are doing this work have at some time or other had the experience of the ease with which a foreign body may be overlooked when lying in the upper part of the esophagus. This may be due to several causes, chief of which was an improper position of the head and the introduction of the tube without making use of the light until the tube was well engaged in the esophagus. If the latter course is pursued, the foreign body may be loosened from its fixed position, and enough force given it by the end of the tube to enable the esophageal peristalsis to carry it into the stomach. However, the chief reason for failure seemed to him to be the following: In introducing the tube the end naturally impinges on the posterior pharyngeal wall. In passing the cricoid cartilage this position is maintained and the rigidity of the cricoid tends to keep the end of the tube pressed against the posterior wall. It is in this position that the tube may pass behind the foreign body, crowding it forward to the softer tracheo-esophageal wall, and thus, even if the tube is introduced under the guidance of the eye, it may escape the view of the operator. In this situation the ledge or the under part of the cricoid cartilage may aid in hiding the body. When much inflammatory swelling or edema is present, the foreign body may escape observation, even when the tube is brought upward and careful search made. This may occur even with comparatively large bodies, as coins.

Invariably the statement is made that the patient swallowed whatever the substance may be. No differentiation is made between inhalation or aspiration and the act of swallowing. Cough, dyspnea, cyanosis, pain—usually early—are the chief diagnostic points, if the foreign body is in the respiratory tract. To these, of course, must be added the physical findings, such as dullness, diminished respiratory murmur, rales, etc., if it is situated in a bronchus. Pain and difficult deglutition are most important evidences if the esophagus is involved. The pain may be referred to the side of the neck or even to the posterior cervical region. Interference with deglutition in the case of children as a rule, only extends as far as solids or

some of the semi-solid substances are concerned. They can swallow milk or other fluids. The pressure of an unusually large foreign body against the anterior wall of the esophagus will produce dyspnea, and may be the cause of confusion in determining the exact location of the foreign body.

Increased pulse rate and temperature may be present if a foreign body is present in either the esophagus or respiratory tract. These depend, however, upon the length of stay of the foreign body, and the changes in the tissues produced by it.

The skiagraph is of the greatest importance in the location of the foreign body, especially if it be of metal or glass. Certain substances, such as a vegetable ivory button, will not give a shadow. In substances with slight density the shadow of the vertebrae is very apt to hide the slighter one. An important fact to be remembered is that a picture, in order to be of the greatest value, should be taken within a reasonably short time previous to operation, for one may have the experience of searching for a foreign body that has already passed into the stomach. In spite of negative x-ray findings, when any reasonable doubt exists as to the presence of a foreign body, an examination is justifiable. At times it will be necessary to have a number of pictures taken. Stereoscopic skiagraphs are of greater value than the single picture.

The question of anesthesia is an important one. If any anesthetic is to be given, the author's opinion is that ether is to be preferred, in spite of its disadvantages. Among leaders in this work the tendency is to avoid the use of any anesthetic, either general or local. While the author has removed foreign bodies in a few cases without an anesthetic, his preference and custom is to have administered just enough ether to cause the preliminary relaxation, and immediately proceed with the operation. The patient is allowed to recover consciousness while the operation is in progress, care being taken to prevent the child from struggling.

In regard to instrumentation, that depends largely upon the school in which one is trained. One of the most valuable instruments in the armamentarium is the direct or open tubular speculum. The proper use of this instrument in many instances will obviate the necessity of the use of the endoscope in the removal of foreign bodies from the upper part of the esophagus.

Dr. Friedberg reported 23 cases, and of these foreign bodies were removed from the esophagus in 16, one of which was but partially successful. In 2 others the foreign body was secured but was lost and passed into the stomach. In 3 cases the symptoms were those of esophageal involvement, while the cause of trouble was located in the lower part of the pharynx. In the remaining 2 cases no foreign body was present, in one of which a peri-esophageal abscess was found. One fatality was noted.

DISCUSSION.

Dr. L. K. Guggenheim referred to a case which illustrated very beautifully the possibility of finding something other than a foreign body when a "foreign body" case comes to the physician. We all know that the majority of foreign bodies in the esophagus pass down into the stomach before the patient consults the physician, the abrasion or bruise caused by it being misinterpreted for a lodgment in the esophagus. This particular case gave the history of having swallowed too large a piece of pig's foot, which became lodged in the esophagus, and for two weeks prior to the time when first seen by the speaker he had been unable to swallow any solid food. The Doctor could find no evidence whatever of the pig's foot, but instead found a very beautiful, pathologically speaking, cancer of the esophagus. The obstruction caused by the new growth made it difficult for the large piece of food to pass. There resulted an increase in the previously existing obstruction which, in turn, resulted in the patient's thinking that the pig's foot had remained lodged in the esophagus.

Dr. Scholz related the histories of two cases, which he believed to be instructive, the first because of the size of the foreign body swallowed. A young man swallowed a ten-inch, four-pronged table fork. Radiograms were made, which showed the fork to be lodged in the upper portion of the esophagus, prongs up. Examination with the esophagoscope, several hours later, failed to show the fork in the esophagus. The fork was afterwards removed from the stomach by means of a gastrostomy. The second case presented certain phenomena which led to an error in diagnosis. A man, about fifty years of age, was referred because of difficulty in deglutition, and for the purpose of an esophagoscopy. While making the usual preliminary examination of the patient, the speaker found that the radial pulses could be readily palpated, but as the arms were gradually raised the left grew weaker, and was not at all palpable when the arm reached the level of the shoulder. Examination of the chest revealed an area of increased dullness about the arch of the aorta. A distinct purring bruit could be heard, so that a probable diagnosis of aneurysm was made. A fluoroscopic examination was made, which disclosed a pulsating mass of about the size of one's fist in the region of the aorta. When the patient swallowed a bismuth mixture a shadow could be seen to pass down to about the level of the arch of the aorta, here to hesitate a moment; from here it deflected to the left several inches, in about the course of a semi-circle, and was then seen to freely find its way to the stomach. The speaker and those connected with the case felt that the tentative diagnosis was correct, that there was an aortic aneurysm, and for that reason the esophagoscope was not passed. Postmortem examination revealed a carcinoma, about the size of a large orange, springing most likely from the bronchial lymph glands. The tumor had broken down in its center, the mass having ruptured into the esophagus

above, and a second fistulous tract from the cavity in the tumor communicated with the esophagus below, so that the bismuth swallowed had in reality left the esophagus, passed through the tumor mass, and then returned to the esophagus by means of a second fistula.

Dr. Joseph C. Beck, of Chicago, called attention to one point in Dr. Friedberg's paper, namely, his criticism of the unreliability of the x-ray in properly locating the foreign body, saying that one position shows the foreign body at one level and another position reveals it at an entirely different location. While this criticism may be true of a single picture, it will not hold good with reference to stereoscopic roentgenograms, in which the foreign body is seen always in the same location.

Dr. Sauer thinks the most important point is the size of the foreign bodies. In a number of his cases it was only after repeated attempts that he succeeded in locating the foreign body.

IROQUOIS-FORD MEDICAL SOCIETY.

The regular quarterly dinner and meeting of the Iroquois-Ford Medical Society was held in the New Gilman House, Gilman, Ill., Tuesday afternoon, June 2, 1914.

The president, Dr. N. T. Stevens, called the meeting to order with the following members present: Drs. S. M. Wylie, J. C. Defries, C. F. Hewins, E. F. Herdien, W. R. Roberts, R. N. Lane, T. N. Boue, S. R. Walker, S. S. Fuller, R. E. McKenzie, Martha Anderson, C. V. Luke and D. W. Miller.

On motion the amendment proposed at last meeting to strike out Sec. 3 of chapter 2 of by-laws was adopted.

On Motion Dr. E. J. Rueck, of Thawville, was elected a member of the society.

On motion the old fee-bill was adopted with the change of fifteen dollars in place of ten dollars for obstetric cases with mileage added.

It was moved that the secretary be instructed to communicate with our U. S. senators and our representative and urge them to use all honorable means to defeat the Nelson amendment to the Harrison on antinarcotic bill.

A paper on "Indicanuria" by W. R. Roberts was then read. The paper was discussed by Drs. Wylie and Fuller.

"A Case of Epilepsy" was reported by Dr. C. F. Hewins and discussed by Drs. Herdien and Walker.

It was moved that the September meeting be held at Plate on the Iroquois River as a picnic and fish fry.

On motion meeting adjourned.

D. W. MILLER.

KNOX COUNTY.

The Knox County Medical Society held its regular meeting in Galesburg, April 16. Drs. Clark E. Weir of Abingdon, R. O. Early of Galesburg, and La-Grange of Onida were elected to membership.

The scientific program was as follows:

During the morning session, from 8:30 to 12:30, Professor John L. Porter of Chicago conducted an orthopedic clinic at the Galesburg Hospital. Twenty-four cases of poliomyelitic deformities, cerebral palsy, synovitis, Morton's metatarsalgia, broken arches, etc., were presented. Casts were made in a number of instances. With one of the ability of Dr. Porter handling the clinic it is unnecessary to add that it was not only very interesting, but very instructive. About forty physicians were in attendance.

In the afternoon session two subjects were considered.

"Carcinoma" was presented by Dr. E. C. Franing, Galesburg, who went into his subject, particularly the prophylactic consideration, very exhaustively. The paper was well received and merited the prolonged discussion it was accorded.

The last on the program was "Principles of Treatment in Nephritis" by Martin H. Fischer, M. D., of the University of Cincinnati. Dr. Fischer discussed it from the view point of colloidal swelling of the cells when such colloids are acted upon by acids, and showed the effects of the administration of alkalies in counteracting the pathological conditions. In the twelve years the society has been in existence no speaker and subject has received the attention and been accorded the prolonged applause that was accorded Dr. Fischer and his talk.

He held the undivided attention of his large audience from the moment he took the floor until they regretfully allowed him to resume his seat.

There were also over forty visiting physicians from outside the county, so the total attendance was over eighty.

G. S. BOWER, Secretary.

LAKE COUNTY.

The regular meeting of the Lake County Medical Society was called for Libertyville on June 16, 1914, but owing to perfect weather conditions and efforts of our arrangement committee, it was decided to make this meeting long to be remembered by those in attendance, so the wives and sweethearts were invited as guests, lunch baskets were filled and a good time in general provided for. Leaving Libertyville about 4 P. M. in autos, the party drove to Lake Eara about three miles distant, and on the grassy, shaded banks of this, one of the most beautiful bodies of inland water in the state, proceeded with our program.

President W. S. Bellows being absent, Dr. E. V. Smith, vice-president, called the meeting to order. Minutes of previous meeting read and approved. This being our annual meeting we proceeded at once with election of officers. Dr. A. H. Churchill, Libertyville, was elected president; Dr. M. J. Kalowsky, Waukegan, vice-president and Dr. C. S. Ambrose, Waukegan, secretary-treasurer. On motion the present Board of Censors were elected for the ensuing year.

Moved and seconded a vote of thanks be extended Dr. W. C. Bouton for his efficient services the past two years as secretary and that a copy be spread upon the minutes; unanimously carried.

The principal address of the afternoon was that given by Dr. A. B. Kanavel of Chicago. His topic, "Surgical Diseases of the Stomach," was delivered in a concise and most interesting manner. The salient features he brought out were, differential diagnosis, the importance of a good history and the underestimated value of the x-ray in determining pathological lesions as found here. All present were very favorably impressed with the manner in which Dr. Kanavel handled his subject, and on motion a vote of thanks was unanimously tendered him by the society.

We then adjourned for recreation and all hands proceeded to find something to do. A game of "Our old cat" proved to be very exciting for some; others made a camp fire and started the coffee boiling, while others busied themselves unpacking lunch baskets and arranging the lunch picnic style—and Oh! such a spread, only those who were present can tell. While seated about the spread and between acts, Dr. Taylor as toastmaster called on the following who responded: Dr. L. H. Tombaugh, toast, "City Practice vs. Country Practice." Mrs. W. C. Bouton, toast, "The Doctor's Wife." Dr. E. H. Ames, the oldest practicing physician in Lake county, gave some interesting reminiscences of early practice. Dr. Florence Stone made a short speech. Drs. Foley and Taylor read their report as delegates to the meeting of the State Society held at Decatur, after which we adjourned to meet at the call of officers, probably in September.

Members present were, Drs. Foley, Bouton, Kalowsky, Tombaugh, Florence Stone, Roemer, Ambrose, Jolley, Taylor, Smith, Turner and Ames. Visitors, Dr. Kanavel of Chicago, and the wives and sweethearts of the members.

C. S. AMBROSE, Secretary.

MARSHALL-PUTNAM COUNTY

The semi-annual meeting of the Marshall-Putnam County Society was held in the city hall at Wenona, Tuesday, May 12, 1914.

PROGRAM

Some Interesting Injuries from Gunshot and Other Causes. McCleary C. Weeks, M. D., Granville.
The Treatment of Fractures With and Without Open Operation; or How to Avoid Delayed Union, Non-Union and Bad Results in General. P. M. Burke, M. D., La Salle.
Chronic Urethral Infections and Complications. T. W. Gillespie, M. D., Peoria.
Joint Infections. George Parker, M. D., Peoria.
Diagnosis of Some Surgical Diseases of the Abdomen. H. A. Millard, M. D., Minonk.
Radium. Report of an Interesting Case in General Practice. J. A. Swem, M. D., Henry.

MERCER COUNTY.

Mercer County Medical Society convened in the Aledo Club Rooms May 5, 1914, at 1 P. M., with Dr. R. H. Smith of Seaton, presiding. After the reading and approval of the previous minutes, and reports of the various committees, a nominating committee was appointed for the selection of officers for the ensuing year, which reported as follows: president, Dr. E. E. Morgan, North Henderson; vice-president, Dr. M. H. Smith, Sherrard; secretary and treasurer, Dr. A. N. Mackey, Aledo.

The following resolution was adopted:

WHEREAS the Mercer County Medical Society opposes the passage of the Nelson Amendment to the Harrison Anti-Narcotic Bill (H. B. 6282), we believe the passage of the amendment to this bill would be a great injustice to the Medical profession, and we sincerely hope for the defeat of the amendment.

Signed E. L. EMERSON,

WALTER MILES,

M. H. SMITH, Committee.

A good attendance being present the program was then taken up. President Dr. R. H. Smith presented "The Diagnostician," "Congenital Occlusion of the Alimentary Canal, with Report of Case," Dr. M. H. Smith, Sherrard, "Radiography of the Chest and Abdomen, with Illustrations," Dr. E. C. Franing, Galesburg. "Pulmotor and its Use, with Illustration of Motor," Dr. A. H. Arp, Moline.

WOODFORD COUNTY.

Woodford County Medical Society met in annual session in the Board of Supervisors room in the Court House, Eureka, Ill., May 5, 1914. Meeting called to order by President F. E. Briggs. Members responding to roll-call were Doctors Briggs, Banta, Crawford, Cotton, Higby, Knoblauch, Millard, Morrison, Nickel, Page Tweddale and Wilcox.

Minutes of previous meeting read and approved as read. Secretary-treasurer's report read and approved as read.

The Nelson amendment to the Harrison Anti-narcotic Bill was read and discussed. Motion was made and carried unanimously that the president and secretary draw resolutions protesting the Nelson amendment and send copies of same to each of our senators and representatives.

Proposition to build a permanent home for the State Society in Springfield was read and discussed. A negative motion was made and carried unanimously.

A communication from the committee on Red Cross Medical Work of the A. M. A. was read and discussed. A motion to appoint a committee as requested in the communication was carried and the following committee appointed: president, W. S. Morrison, secretary, H. A. Millard (both ex-officio) C. F. Banta, F. E. Briggs, J. I. Knoblauch.

The application of Dr. Henry M. Barth of Metamora for membership in this society was read and referred to the Board of Censors. After favorable

report by said Board Dr. Barth was duly elected to membership.

It was suggested that this society give a reception and banquet to Drs. N. B. Crawford and James Tweddale, the two oldest members of this society and pioneers of the county. A motion that said banquet be given and the president and secretary make the arrangements and select the time and place was carried unanimously. Banquet will be held at Minonk, July tenth.

The following officers were elected for the ensuing year: president, W. S. Morrison; vice-president, C. F. Banta; secretary-treasurer, H. A. Millard; Censor, for three years, F. W. Wilcox; Present Board of Censors, C. F. Banta, J. I. Knoblauch, F. W. Wilcox.

The following program was then given:

"Report of Cases Treated by Autogenous Vaccines," W. C. Cotton. "Head Injuries," W. S. Morrison. Discussion of the business side of the medical profession.

Dr. Gillespie of Wenona, secretary-treasurer of the Marshall-Putnam County Medical Society was a welcome visitor and was gladly accorded the privileges of the society.

Society was on motion adjourned.

H. A. MILLARD, Secretary.

Personals

Dr. Jay T. Wood has been elected city physician of Springfield.

Dr. and Mrs. Louis J. Frederiek, Joliet, have returned from abroad.

Dr. John A. Robison has removed to 30 N. Michigan boulevard, Chicago.

Dr. James P. Prestley has been reappointed health commissioner for Newton.

Dr. Lewis L. McArthur, who has been seriously ill at his home, is reported to be convalescing.

Dr. Charles F. W. Eberlein, chief of staff of the Oak Forest Infirmary, has resigned.

Dr. V. D. Crone, of Canton, is at Rochester, Minn., undergoing treatment for gall-stones.

Dr. Effic L. Abbott, a member of the Anna State Hospital, has been transferred to a similar position at the Elgin State Hospital.

Dr. Stephen R. Pietrowiez, formerly superintendent of the Dunning institutions, has been appointed a member of the school board.

Dr. Gustav F. Ruediger has been elected health commissioner, and Dr. Orie C. Yoder, Peru, assistant health commissioner, of La Salle.

Drs. Douglas A. Payne, Adolph Hartung, Maximilian Hubeny and A. H. Waterman have removed to 25 E. Washington street, Chicago.

The Hamilton College of Law of Chicago at its annual convocation June 3, 1914, conferred the degree of Doctor of Civil Law on G. Frank Lydston, M. D., of Chicago.

Dr. C. B. Voight, Mattoon, sailed for Vienna and London, June 15, where he will do post-graduate work in diseases of the eye, ear, nose and throat, returning home September 1.

Dr. Charles W. Leigh, who was in Rochester, N. Y., for the meeting of the American Association of Milk Commissioners, was seized with appendicitis soon after his arrival, removed to the Rochester General Hospital, and operated on. He is reported to be doing well.

The following physicians have gone abroad: Charles E. Cole, Jacksonville; Charles B. Voigt, Mattoon; Louis Brandon, Frederick E. Roberg, Joliet; Dr. and Mrs. James F. Percy and Dr. and Mrs. E. C. Franing, Galesburg; Dr. and Mrs. Harry B. Bailey, Rockford; Dr. and Mrs. Robert H. Buck, Sara Craig Buckley and daughter, George H. Miller and family, Oscar T. Roberg, Dr. and Mrs. P. C. Schenkelberger, Michael Goldenberg, Peter J. Latz and Adolph Hartung, Chicago.

News Notes

—The Wisconsin Eugenics Law was upheld by the State supreme court, June 19, but a strong dissenting opinion was held by two of the justices.

—The Huber Memorial Hospital, Pana, erected at a cost of \$100,000, through the beneficence of the late Dr. Jacob Huber, was thrown open June 13 for the reception of patients.

—An antituberculosis clinic has been established in Jacksonville. It was opened for the first time June 9, and it will receive patients from 10 a. m. until noon each Tuesday and Friday.

—The postmaster general lately issued an order denying further use of the U. S. mail to the "Dr." F. W. Jiroch Company of Chicago. The investigators related six different conditions of ill health for which the company prescribed the same treatment.

—The Kane County Anti-Tuberculosis League has planned a temporary tent colony, pending favorable action on the county tuberculosis sanatorium proposition. A site has been selected near

Gilbert, and a donation of \$2,000 has already been promised.

—The State Board of Health, with the approval of the governor, has begun a sanitary survey of the summer resorts of the state, which are charged with being responsible for a large proportion of the typhoid cases which exist in the late summer months.

—On June 10 a bust of Dr. D. A. K. Steele was presented to the College of Physicians and Surgeons of the University of Illinois by the faculty and alumni of the college. The presentation was made by Dr. Adolph Gehrmann and the bust was accepted by President James of the university.

—At a meeting of the Kane County Medical Society, at Geneva, May 6, the association heartily endorsed the proposition for a Kane County Anti-Tuberculosis Sanatorium, and pledged their support. The supervisors of Kane County have already appropriated \$5,000 toward the purchase price of a site for the sanatorium.

—At the request of the efficiency and economy committee of the Illinois legislature, P. A. Surg. Richard H. Creel, U. S. P. H. S., is to make an investigation of the sanitary condition of the state and laws under which it is carried on. Surgeon Creel's report is to be made the basis of the recommendation of the committee to the legislature at its next session.

—The governor has approved plans laid before him by Dr. C. St. Clair Drake, secretary of the State Board of Health, for the material extension of the laboratory department of the board. It is announced that the Wassermann blood-test will be made free of charge for indigent patients, and that microscopic examinations of cultures in cases of diphtheria will also be made under the same conditions.

—At the annual meeting of the Alumni Association of the Northwestern University Medical School, held in Chicago, June 8, the following officers were elected: president, Dr. Frederick A. Besley, Chicago; vice-presidents, Drs. William H. Fitch, Rockford, and Edward Von Hess, Chicago; secretary, Dr. Arthur B. Eustace (re-elected); treasurer, Dr. Leo G. Gwan (re-elected); and necrologist, Dr. Samuel C. Stanton.

—The faculty of the Northwestern University Medical College, at a recent meeting, voted that

hereafter every student who matriculates will be required to spend at least one year as an intern, and in an acceptable hospital, before a degree will be given. This school is the fourth medical school to make hospital internship a condition for a degree, the other schools being University of Minnesota Medical Department, Rush Medical College and the Medical Department of Leland Stanford University.

—The Nicholas Senn High School at Glenwood and Ardmore avenues was formally dedicated June 15. Various phases of the life of the "Master Surgeon" for whom the school is named were spoken of by Drs. William A. Evans, P. J. H. Farrell and Truman W. Brophy. An address was also delivered by Ella Flagg Young. A bronze bust of Dr. Senn, which had been presented to the school, was unveiled by Dr. Farrell and was accepted by C. A. Peterson on behalf of the board of education.

—At the annual meeting of the Alumni Association of Rush Medical College in Chicago, June 10, the following officers were elected: President, Dr. Arthur M. Corwin, Chicago; vice-presidents, Drs. Daniel H. Bowen, Waukon, Iowa; Charles J. Lewis, Chicago, and John R. McDill, Milwaukee; secretary, Dr. Charles A. Parker, Chicago; treasurer, Dr. Elmer E. Kenyon, Chicago, and necrologist, Dr. John J. Stoll, Chicago. This association has raised \$10,000 this year toward a \$30,000 permanent endowment fund, the interest of which will be solely for use of the Alumni, in maintaining Fellowships, Publishing Bulletin, and otherwise pushing its work.

—The new fireproof Chicago Psychopathic Hospital at Wood and Polk streets, costing about \$470,000, was opened June 27, Dr. H. S. Davis, Superintendent. The new institution is for the study and treatment of incipient insanity and will accommodate 230 patients.

As Dr. Davis states: "It will be the duty of the hospital to take means to prevent the spread of mental disorders. This can be accomplished by giving the proper instruction to physicians and in educating the public."

President McCormick of the Cook County Board will ask the Legislature for a bill extending the time that patients may be kept from 10 to 30 days.

—At the alumni meeting of the Association of the College of Physicians and Surgeons of the University of Illinois, held in Chicago, June 10, addresses were made by President Edmund James James of the university, who announced a plan of asking \$1,000,000 from the legislature for the construction and endowment of a teaching hospital as a part of the university; by W. S. Abbott, president of the board of trustees, and Dr. Albert L. Brittin, Leslie, Ill., president of the Illinois State Medical Society. The following officers were elected: President, Dr. J. M. Berger; vice-presidents, Drs. Charles H. Phifer and George J. Lorch; secretary, Dr. Frank Chauvet; treasurer, Dr. Robert N. Morris, all of Chicago.

—The recent experiences of Chicago courts emphasize the necessity for a campaign against the reproduction of defectives. Judge Owens of the Cook County Court points out that the insanity cases have increased from 1,724 in 1907, to 2,430 in 1913. And Dr. W. J. Hickson, of the psychopathic laboratory, from the examination of 245 boys in the Boys' Court, found that only 7.34 per cent had a normal intellectual development, and 84.49 per cent were morons.

To quote Dr. Dickson:

Something must be done and done quickly, now that true conditions are coming to light, to set this appalling situation right. It means, of course, a new attitude toward crime and criminals; it means a re-making of the laws dealing with these cases, a re-making guided by a scientific understanding of the whole matter.

—The following letter anent the shooting of Dr. D. Winton Dunn, of Duquoin, June 6, expresses a feeling that is becoming quite common among medical men:

No class of men does more charity work than the physicians, and they do it gladly where there is genuine poverty, going on their rounds regardless of personal convenience, weather, or personal sickness. There are many cases on record where a doctor has gone to his death because he attended patients when he should have gone to bed, and often a tired doctor has attended a charity case after refusing a paying case.

The case in Duquoin, where the delinquent debtor murdered the physician, was not a charity case. The man was stronger than the physician, for your report states that the doctor was frail and unable to cope with his assailant. The man was evidently satisfied with the medical services he had received or else he would not have insisted on calling the same doctor for his child; for Duquoin, a town of 5,000, must have other medical men. Then why had not a strong man paid for services satisfactorily performed?

It is exactly because physicians as a class have always practiced such indiscriminate charity that they have created a class of "dead beats" who consider that a physician's scientific training, his health, and his time should be theirs without even a "thank you."

The great majority of physicians just make a living, many leave their wives and families in destitution when they die. They work harder and longer hours than any other class of men and see less of their families.

The sooner that class of men understands that the doctor will do all that charity asks, but that he will no longer be imposed upon, the better for them, for they will be induced to save for rainy days; the better for the deserving poor, for the physician will have more time for them; the better for the doctor, for he will have leisure to study, and improve himself for the good of humanity, and finally the better for the doctor's family, as he will be able to provide for them in case of death.

A DOCTOR'S WIFE.

Marriage

GEO. A. SIHLER, JR., M. D., to Miss Lois E. Miller, at Hillsboro, June 10.

JAMES W. WELCH, M. D., to Miss Clarissa Bennett, both of Cuba, June 18.

ROSS W. GRISWOLD, M. D., to Miss Camilla Seymour, at Hillsboro, May 27.

GEORGE DOHRMANN, M. D., to Miss Kaethe Heinsohn, both of Chicago, June 12.

CLEAVER HENRY BRINKERHOFF, M. D., to Miss Clara Wagner, both of Chicago, June 10.

LEWIS JOHN POLLOCK, M. D., Chicago, to Miss Katherine Percy of Galesburg, Ill., June 6.

CHARLES HENRY SCHMIDT, M. D., Chicago, to Miss Effie Olson of Melrose Park, Ill., May 28.

JOHN MATTHEW LILLY, M. D., to Miss Mary Charlotte Seitsinger, both of Chicago, June 16.

EDWARD C. SPITZE, M. D., East St. Louis, Ill., to Miss Esther Louise Niedermeyer of Decatur, Ill., June 17.

FRANCIS JAMES CONROY, M. D., Sterling, Ill., to Miss Blanche Murrin of Rock Island, Ill., June 2.

Deaths

NATHANIEL BROWN RICE, M. D. Albany, N. Y., Medical College, 1854; died at his home in Chicago, June 10, aged 84.

WILLIAM BAYARD CARROLL, M. D. University of Michigan, Ann Arbor, 1880; died at his home in Chicago, May 30, aged 56.

EMMA J. ROBERTS, M. D. Minneapolis College of Physicians and Surgeons, 1901; died at her home in Chicago, May 24, aged 48.

JOHN A. JEFFRIES (license, Illinois, 1878). For half a century a practitioner of Rindard, Ill.; died at his home in St. Louis, May 26, aged 80.

SAMUEL B. WRIGHT, M. D. University of Nashville, Tenn., 1875; died at his home in Stanford, Ill., May 13, from carcinoma of the throat, aged 63.

EDWIN E. WILLIAMS (license, Ill., 1893); a practitioner of Streator, Ill., for fifty-one years; died at his home, May 13, from chronic nephritis, aged 77.

ADRIAN B. COULTER, M. D. Hahnemann Medical College, Chicago, 1867; surgeon of U. S. Volunteers during the Civil War; for many years an optician of Chicago; died at his home June 10, aged 74.

DAVID ALEXANDER RYAN, M. D. Dearborn Medical College, Chicago, 1906; formerly a member of the staff of the German Hospital; died at his home in Chicago, May 15, from a nervous breakdown, aged 55.

EDWIN STANTON PARKER, M. D. Northwestern University Medical School, Chicago, 1885; a fellow of the American Medical Association; one of the leading and respected physicians of Fulton County; died at his home, May 24, aged 54.

HORATIO S. BREWER, M. D. Bennett Medical College, Chicago, 1879; for twenty-five years a member of the staff of the Chicago, Milwaukee & St. Paul Railway; a veteran of the Civil War; died at his home in Chicago, May 18, aged 68.

CHARLES JENKS SIMONS, M. D. Albany (N. Y.) Medical College, 1867; a member of the Illinois State Medical Society, and a veteran of the Civil War; a practitioner of Chicago since 1868; died at his home in Chicago, June 18, from arteriosclerosis, aged 71.

HENRY A. DINGES, M. D. Missouri Medical College, St. Louis, 1886; a Fellow of the American Medical Association; thrice mayor of Red Bud, Ill.; and local surgeon of the Mobile and Ohio Railroad; Supreme Physician of the Catho-

lic Knights of America; died at his home in Red Bud, Ill., May 30, aged 59.

D. WINTON DUNN, M. D. American Medical College, Eclectic, St. Louis, 1890; formerly mayor of Duquoin, Ill.; while alone in his office in Duquoin, June 6, was shot by a coal miner who owed him a bill, and whose child he is said to have refused to treat on that account. Dr. Dunn was taken to St. Louis on a special train, but died from his injuries, June 7, aged 62.

JOHN P. WEBSTER, M. D. Hahnemann Medical College, Chicago, 1883; Harvey Medical College, Chicago, 1896; a Fellow of the American Medical Association; a member of the Mississippi Valley Medical Association, American Association of Railway Surgeons, and Erie Railroad Surgeons' Association; chief surgeon of the Chicago & Western Indiana Railway; local surgeon to the Erie and Monon systems; surgeon to the Englewood Hospital and St. Ann's Hospital Sanatorium; died at his winter home in Pasadena, Cal., May 24, aged 62.

Book Notices

MEDICAL SYMPOSIUM SERIES, NO. 3. RECENT STUDIES OF TUBERCULOSIS. A reprint of Articles Published in the Interstate Medical Journal, St. Louis. Interstate Medical Journal Company. 1914. Price, \$1.50.

A reprint of 41 pages on the various phases of tuberculosis and its treatment, written by nearly as many different authors. It contains most that is new in the study of tuberculosis, and describes many of the newer procedures in the treatment of this disease. We wish it might have included more on the question of immunization against tuberculosis.

The editor and publisher of the Interstate Medical Journal are to be commended for bringing this volume out, and it should receive a generous support.

PRACTICAL THERAPEUTICS, INCLUDING MATERIA MEDICA AND PRESCRIPTION WRITING, WITH A DESCRIPTION OF THE MOST IMPORTANT NEW AND NONOFFICIAL REMEDIES PASSED UPON BY THE COUNCIL OF THE AMERICAN MEDICAL ASSOCIATION. By Daniel M. Hoyt, M. D., formerly Instructor in Therapeutics, University of Pennsylvania; Fellow of the College of Physicians; Assistant Physician to the Philadelphia General Hospital. Second Edition Revised and Rewritten. St. Louis. C. V. Mosby Company. 1914. Price, \$5.00.

TEN SEX TALKS TO BOYS (10 years and older). By Irving David Steinhardt, M. D., Author of "Ten Sex Talks to Girls" (14 years and older), Instructor in Clinical Surgery and Assistant Surgeon, Cornell University Medical School; Assistant Pediatrician, Mount Sinai Hospital, O. P. D., New York City; Orthopedic Surgeon, New York Hospital, O. P. D.,

and Bronx Hospital and Dispensary; First Lieutenant, Medical Reserve Corps, U. S. A.; Member of American Medical Association; The American Society of Moral and Sanitary Prophylaxis, and the American Academy of Political and Social Science, etc. With twelve illustrations. Philadelphia & London. J. B. Lippincott Company.

RADIUM AND RADIO THERAPY. By William S. Newcomet, M. D., Professor of Roentgenology and Radiology, Temple University, Medical Department, Physician to the American Oncologic Hospital. Illustrated with 71 engravings. Lea & Febiger, Publishers, Philadelphia and New York. 1914.

At the present day, when we hear so much pro and con in radium therapeutics, this work will greatly aid in obtaining accurate knowledge on this subject. The subjects are taken up in successive order, first a chapter on the history of the development of radio activity, then chemistry and physics of the radio active elements, then chapters on the physiology and therapeutics.

The treatment is especially good, and exaggerated claims are not made for this important therapeutic aid.

For those interested in this subject a careful perusal of this volume will be time well spent.

INFANT FEEDING. By Clifford G. Grulee, A. M., M. D., Assistant Professor of Pediatrics at Rush Medical College, Chief of Pediatric Staff, Cook County Hospital. Second Edition, Thoroughly Revised. Octavo of 314 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1914. Cloth, \$3.00 net.

This volume, the Second Edition, is well worth careful study and perusal. It is the most modern book on the subject of infant feeding, and shows expert knowledge throughout. References are plentiful. The European school has been liberally drawn upon, and from the large experience of the author himself, which makes it an authoritative work on this subject, a subject which today has become of great importance.

BLOOD PRESSURE IN MEDICINE AND SURGERY. A GUIDE FOR STUDENTS AND PRACTITIONERS. By Edward H. Goodman, M. D., Associate in Medicine in the University of Pennsylvania. 12mo, 226 pages, illustrated. Cloth, \$1.50, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

Dr. Goodman has very thoroughly presented the subject of blood pressure in this small volume of 226 pages. Chapters are presented on physics and the physiology of blood-pressure, which are followed by chapters on hypertension and hypotension, blood pressure in cardiovascular, renal, infectious, and nervous diseases. Chapters are also given to blood-pressure in obstetrics, surgery, on conditions of the gastrointestinal tract, internal secretory glands, and ophthalmology.

At the close of this handy volume, chapters on the effect of drugs and other therapeutic measures on blood-pressure and on treatment of hypertension and hypotension.

The book is gotten up in good style, clear, direct and simple.

AMERICAN MEDICAL DIRECTORY. 1914. Fourth Edition. A Register of Legally Qualified Physicians of the United States, Alaska, Canal Zone, Hawaii, Porto Rico, Philippine Islands, Canada and Newfoundland. Price \$10.00. Chicago. American Medical Association, 535 North Dearborn Street.

Besides being by far the best medical directory, it is gotten up and issued by the American Medical Association. Every member of the Association wishing a directory should patronize his own institution. Matters concerning the Society are all official, and it gives much more information than any other directory.

NEW AND NON-OFFICIAL REMEDIES.

Since publication of new and non-official remedies, 1914, the following articles not previously described have been accepted for inclusion with "N. R. R.":

H. M. Alexander & Co.: Normal Horse Serum.

Antiseptic Supply Co.: Causticks; Caustick Applicators; Cupristicks; Stypticks.

Arlington Chemical Co.: Arlco Urease.

Comar & Cie: Electrargol.

Farbwerke Hoechst Co.: Erepton.

Franco-American Ferment Co.: Lactobacilline Tablets; Lactobacilline Liquide, Culture A; Lactobacilline Liquide, Culture D; Lactobacilline Liquide, Infant Culture; Lactobacilline Glycogene Tablets; Lactobacilline (Glycogene Liquide); Lactobacilline Milk Tablets; Lactobacilline Milk Ferment; Lactobacilline Suspension.

Hoffman-La Roche Chemical Works: Thiocol Tablets.

H. K. Mulford Co.: Acne Serobacterin; Coli Serobacterin; Culture of Bulgarian Bacillus, Mulford; Neisser Serobacterin; Pneumo Serobacterin; Scarlatina Strepto Serobacterin; Straphylo Acne Serobacterin.

Riedel & Co.: New Bornyval.

Reinschild Chemical Co.: Phenolphthalein Agar.

E. R. Squibb & Sons: Sodium Biphosphate, Squibb; Tetanus Antitoxin, Squibb, 5,000 units.

Sodium Biphosphate, Squibb.—This non-proprietary form of sodium acid phosphate has been accepted for inclusion with new and non-official remedies. E. R. Squibb & Sons, New York (Jour. A. M. A., May 2, 1914, p. 1401).

Normal Horse Serum with Chloroform as a Preservative.—Marketed in vials, each containing 50 cc. H. M. Alexander & Co., Marietta, Pa.

Normal Horse Serum without Preservative.—Marketed in vials, each containing 50 cc. H. M. Alexander & Co., Marietta, Pa. (Jour. A. M. A., May 2, 1914, p. 1401).

Erepton.—A meat product consisting largely of the amino-acids produced by the digestion of meat. Erepton is said to be useful in cases in which it is necessary to substitute a perfectly digested food for the product of natural digestion in cases of gastric or intestinal indigestion and for the purposes of rectal alimentation. Farbwerke Hoechst Co., New York (Jour. A. M. A., May 16, 1914, p. 1559).

Acne Serobacterin, Mulford.—This is a sensitized acne vaccine. H. K. Mulford Co., Philadelphia, Pa.

Coli Serobacterin, Mulford.—This is a sensitized coli vaccine. H. K. Mulford Co., Philadelphia, Pa.

Neisser Serobacterin, Mulford.—This is a sensitized gonococcic vaccine. H. K. Mulford Co., Philadelphia, Pa.

Pneumo Serobacterin, Mulford.—This is a sensitized pneumococcic vaccine. H. K. Mulford Co., Philadelphia, Pa.

Staphylo Acne Serobacterin, Mulford.—This is a sensitized staphylo acne vaccine. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., May 16, 1914, p. 1559).

New Bornyval.—New bornyval is borneol isovaleryl glycolate, the isovaleryl glycolic acid ester of borneol. Being more resistant to the gastric fluids than bornyval, it passes the stomach unchanged and is said, therefore, to be less irritating than bornyval. Its properties are similar to those of bornyval and other valerian preparations. New bonyval is an almost tasteless and odorless liquid, insoluble in water. It is sold also in the form of Bornyval Pearls, each containing 4 minims of New Bornyval. Riedel & Co., New York (Jour. A. M. A., May 23, 1914, p. 1637).

Scarlatina Strepto-Serobacterin, Mulford (Immunizing).—A sensitized scarlatina streptococcic vaccine, sold in packages containing three doses of killed sensitized streptococci. (The council has at present no means for determining the identity and purity of serobacterins and these must, therefore, be used on the guarantee of the manufacturer alone.) (Jour. A. M. A., April 11, 1914, p. 1168.)

Phenolphthalein-Agar.—Phenolphthalein-agar is agar-agar impregnated with phenolphthalein, 100 gm. containing 3 gm. of phenolphthalein. It has the properties of agar-agar, augmented by those of phenolphthalein. The Reinschild Chemical Co., New York (Jour. A. M. A., April 11, 1914, p. 1168).

Causticks (Silver Nitrate 75 per cent).—Wooden sticks 1½ inches long, tipped with a mixture of silver nitrate 75 per cent and potassium nitrate 25 per cent. Each stick is to be used but once. Antiseptic Supply Co., New York.

Caustick Applicators (Silver Nitrate 75 per cent).—Wooden sticks 6½ inches long, tipped with a mixture of silver nitrate 75 per cent and potassium nitrate 25 per cent. Each stick is to be used but once. Antiseptic Supply Co., New York.

Cupricsticks (Copper Sulphate 60 per cent).—Wooden sticks 1½ inches long, tipped with a mixture of copper sulphate 60 per cent, alum 25 per cent and potassium nitrate 15 per cent. Each stick is to be used but once. Antiseptic Supply Co., New York.

Stypsticks (Alum 75 per cent).—Wooden sticks 1½ inches long, tipped with a mixture of alum 75 per cent and potassium nitrate 25 per cent. Each stick is to be used but once. Antiseptic Supply Co., New York (Jour. A. M. A., April 25, 1914, p. 1328).

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Original Articles

THE RELATION OF PRECORDIAL PAIN TO HEART DISEASE.*

JOSEPH M. PATTON, M.D.
CHICAGO.

When we allude to precordial pain as a subjective symptom, we are likely to do so without definite intention and to neglect certain features of its manifestation which are important in a differential sense.

The importance of precordial pain lies in the fact that it may be indicative of serious lesion of the heart or great vessels or, again, may be of comparative innocence.

Behan maintains that hyperalgesia of certain areas, usually precordial, may mean heart disease even though other signs of such condition should be absent. Many clinicians have objected to such an interpretation of areas of referred pain when unassociated with other evidence of cardiac disease even though the weakness of the negative evidence of absence of such zones be admitted. We shall have to admit that areas of hyperalgesia or of pain, when unassociated with or produced by other cardiopathic factors, must be very carefully observed before we can assume that they are directly indicative of organic heart lesion.

In 1873 Loomis called attention to the fact that pain associated with heart disease might be referred to points remote from the precordial region. This fact was later elaborated by Head and Mackenzie. Morgagni recognized pain as a subjective evidence of heart disease, and Laennec pointed out that the painful areas were also tender.

As the heart is not a particularly sensitive organ, there will be no pain exhibited in connection with mural or valvular lesions except when such sensory filaments as may exist in the en-

docardium are irritated by the acute phase of an endocarditis, by hyperventricular tension, or when normal blood supply is in some measure interrupted. We are, therefore, obliged to implicate the cardiac nerve supply and its associations with spinal nerves, pneumogastric, brachioplexus, etc., as elaborated by Lussana, Sturge, Ross, Mackenzie, Head, Gaskell, and others.

That precordial pain is referred and not local is shown by the fact that it has no constant relation to the condition of the valves or the musculature of the heart, the cycle of the heart's action, or to the contact of heart and chest wall. Many different factors may be involved, as is shown by the views offered in explanation, such as ischemia of the heart muscle (Burns, Potain), relative dynamic failure (Parry, Brunton), neuritis (Lancereaux, Peter), vasospasm (Landois, Nothnagel), spasm of the heart itself (Heberden, Latham), spasm of the coronary vessels (Huchard), hyperesthesia of the cardiac plexus (Romberg); and Balfour has called attention to the fact that functional deterioration of the nerves from malnutrition and chronic disease is an important factor in exaggerating the effect of the various factors enumerated above. Toxæmia, anemic, or degenerated blood is also a recognized factor in increasing the importance of other pain producing causes.

Organic changes in the heart and great vessels are, in the majority of instances, responsible for the pain. Nothnagel showed that in 483 cases of valvular disease, analyzed in relation to pain, that pain was present in aortic lesions of various types in from 18 to 68 per cent., while mitral lesions showed only from 8 to 18 per cent., in which pain presented. The fact that the structures of the left side of the heart are connected with the left coronary and left deep cardiac plexuses, and along with the superficial plexus with the left nerve centers, accounts for the great

*Read at the sixty-fourth annual meeting of the Illinois State Medical Society at Decatur, May 20, 1914.

frequency of left-sided pain in cardiac disease.

Greater pressure effects in the left heart and aorta, together with greater frequency of degenerative changes in the coronary vessels of the left heart furnish a direct etiology for the association of pain with aortitis and valvular lesions. As far as the diffusion areas of the tenderness is concerned, we may recall that Head has said: "The sensory and localizing power of the body is enormously in excess of that of the viscera, and thus, by what might be called an error of judgment, the diffusion area is accepted by consciousness, and the pain is referred to the surface of the body instead of to the organ actually affected."

In aortitis it is probable that there is no pain until the adventitia of the vessel and the neighboring cords of the sympathetic become involved with implication of the aortic and celiac plexuses. While Potain believed that inflammation of the arterial wall alone would cause pain, clinical evidence seems against this view, and it is not in accord with the beliefs of Buch, Flourens, Debove and Letulle, and many others.

Buch explains paroxysmal pain by postulating hyperalgesia of the neighboring sympathetic cords, excessive function of the suprarenals which raises blood pressure by contracting the superficial vessels, the result of this on the stiff, large vessels is pain. This is followed by reflex dilatation and relief of pain. We might cite, as an analogous condition, Raynaud's disease and intermittent claudication, in which we have spasms of pain, depending on more or less constant obstruction of the circulation plus intermittent spasms of the vessels supplying the part.

According to Behan the cutaneous areas of hyperalgesia in heart disease are those tributary to the cord segments extending from the eighth cervical to the fourth dorsal, and, in conditions of ventricular dilatation and back-pressure effects with large zones of precordial and liver tenderness, involving the seventh, eighth and ninth dorsal segments. The last cervical and first and second dorsal zones extend down the arms. These zones may only be painful in the event of associated debilitating conditions. Vagaries in the manifestations of these zones are charged against variations of embryonal development.

The psychic effect of precordial pain is most interesting. There is, perhaps, no single symptom which in itself does not necessarily indicate

serious conditions that so greatly alarms the patient. He will accommodate himself to moderate degrees of dyspnea and will explain, to his own satisfaction, the appearance of edema of moderate extent, but precordial pain is something about which he desires to be reassured. His alarm is not in proportion to the seriousness of the pain, for the dolor of an organic angina may not be viewed with so much alarm as the sharp twinges of a reflex pain due to a gastritis. The quiet, intense apprehension of danger characteristic of organic angina is altogether different from the restless alarm of pseudo-angina, or of reflex precordial pain.

A young woman quite convinced of her immediately impending death, and who could not keep still long enough to permit of an examination, became so angry when assured that death was neither probable or possible at that time that she ordered me to depart forthwith.

An elderly man suffering from an attack of angina *sine dolore* said: "Doctor, I am not afraid to die, but I have the most horrible fear of something about to happen to me." A few minutes later he was dead.

A colleague, a hard-headed surgeon of steady nerve, called me hurriedly. I found him resting comfortably on a lounge. He apologized and said: "I guess I was only alarmed, but I am mighty glad to see you." A few seconds later he was dead.

Heart fear is a term used to define sensations of restlessness, oppression, constriction and indefinite pain about the precordium, generally occurring in nervous individuals. It may be associated with gastro-intestinal derangement, disturbances of cardiac innervation, high blood pressure from toxemia or over-strain, and sometimes with valvular lesions. It may be attended with areas of hyperalgesia, but if so they are not so definite as those associated with myocardial lesions, and they may present in remote portions of the head, neck or chest, in which event they are not so disturbing to the patient.

It is an established fact that pain in association with heart disease is much less frequent among the cardiopaths of charity hospitals than among private patients of higher social status, and, apparently, this discrepancy is greater than the variations in the degree of concern as to the final outcome exhibited respectively by the two classes of patients.

Some individuals who are in the early period of cardio-vascular developments—the so-called pre-nephritic period,—or who exhibit vaso-motor instability from toxic causes or overstrain, with high blood pressure, may complain of a sense of constriction, oppression, or pressure without pain or heart fear and with or without disturbances of rhythm. This is a mild intimation of a relative dynamic inability of the heart muscle, due in part at least to increased peripheral resistance, and which later, in association with aortitis or myocardial degeneration, may develop distinct cardiac pain indicative of a negative dynamic cardiac force, which pain, Musser has told us, will persist until stretching of the mitral opening gives relief to the intraventricular pressures.

The character of precordial pain may be indicative of its cause. Sharp pain, appearing suddenly and ending abruptly, may indicate myalgia, pleurisy, intercostal neuralgia, reflex pain from causes below the diaphragm. Persistent sharp pain may be from aneurysm or mediastinal growths, as likewise may be dull, boring, continuous pain. True or false angina may also begin suddenly and end abruptly, but has also distinctive features. Pain from aortitis and myocardial conditions usually has an indefinite beginning and is mostly associated with causes which raise the blood pressure, subsiding slowly and only with relief of pressure conditions by rest or medicine. Sudden, severe attacks of pain, with subsequent relief for considerable periods are to be regarded with suspicion of cardiac ischemia, which is likely to recur.

The two valvular lesions likely to show pain are aortic lesions and mitral stenosis. Pain from aortic lesions is usually at the base of the heart except when the ventricle is stretching, when it will be all over the precordial area. Mitral stenosis exhibits sharp twinges of pain about the apical region, vagrant in character, and with, apparently, no relation to the dynamic condition of the heart. These pains are frequent in nervous women with mitral stenosis, but typical angina is very rare. Nothnagel collected 1,500 cases of valvular disease, many of which showed anginous symptoms, but in only one instance was angina associated with mitral stenosis.

The location of the pain is important. In reflex pain of extra-cardiac origin the pain may

be lateral or bilateral. The wider its extent the more surely it is not of cardiac origin. Referred gastro-intestinal pain is usually not above the fifth rib and is also felt behind at the lower angle of the scapula. Pain from aneurism or aortitis is located above the fifth rib as a rule and is also felt at the left shoulder and down the arms to the elbows or fingers. In cardiac dilatation the pain, as well as the areas of hyperalgesia, may cover the liver area as well as the precordial.

Ever since Laennec's observations as to the frequency of angina pectoris there has been a wide difference of opinion as to the frequency and the fatality of this affection, also as to the propriety of using the term pseudo-angina. In 1812 Latham described a group of symptoms, under the term *angina notha* as "usually, but not always, denoting angina pectoris." So far as the term pseudo-angina represents a condition not associated with demonstrable lesion, and which has a tendency to get well, we may agree with Morrison that it may be advisable. At any rate, the very frequent occurrence of neurotic forms of angina may be accepted as a reason for the very remarkable difference of medical opinions and experience in regard to angina pectoris.

The main features of pseudo-angina are its occurrence in married women, in younger persons than true angina, and a tendency to get well. Its special features: recurrent attacks, nervous causes, and, at times, remarkable persistency. Osler divides this type of angina into the neurotic and the toxic; and the former into the neurasthenic, hysteric, angina vaso-motoria of Nothnagel, and the reflex.

The pain of pseudo-angina varies remarkably in character and intensity. It has the widest range of distribution and may be referred to isolated spots (supraorbital, testicular, ovarian). It may simulate closely the pain of true angina both in character and location, but though the subject may be alarmed and excessively nervous, there is not the distinctive *angor animi* which accompanies true angina and is a marked feature even of the *angina sine dolore* of Gairdner.

In neurotic angina the pain may appear suddenly but is usually preceded by dizziness, oppression in the chest, or some ataxia in the gait, especially in the toxemia from tobacco; by gastro-

intestinal symptoms in the reflex form; by dizziness or syncopal attacks preceded by flushing, or paleness and sweating in the vaso-motor types, and by languor, weakness, tingling, prickling, or numbness of the extremities, dyspnea and various other nervous symptoms in the hysterical group.

The vaso-motor type shows greatest radiation of pain, which is usually confined to the chest, arms, head or neck but may be felt in the abdomen or lower extremities. The toxic type, especially that due to tobacco, exhibits dull, distressing pain mostly confined to the precordium or epigastrium. It is likely to be persistent rather than paroxysmal.

Coronary angina presents two main features of the paroxysm,—the *dolor pectoris* and the *angor animi*. These are usually associated, though the latter may obscure the former, which may even be absent—the *angina sine dolore* of Gairdner.

The pain of true angina is indescribable. Seneca said: "To have any other malady is to be sick; to have this is to be dying." The pain begins suddenly, as though a dagger was thrust into the heart or the chest crushed in a vise or by a gradually constricted band of iron, or a horrible weight pressed the chest wall in. Excitement may institute the pain, as with the famous John Hunter, who said his "life was in the hands of any rascal who chose to annoy or tease" him. On the other hand, Sumner would precipitate an attack of a sudden movement while reading at night, yet an exciting debate in the Senate had no such an effect.

With the onset of an attack the subject assumes a fixed position and remains more or less absolutely still until the pain ceases, being apprehensive of the effect of the slightest movement. John Hunter's nephew says that during the first attack suffered by his uncle the latter "found himself not breathing. Being afraid of death soon taking place if he did not breathe he produced the voluntary act of breathing by working his lungs by the power of his will." This illustrates the almost subconscious tendency to immobilization which is in marked contrast to the restless irritability of other forms of angina.

The pain ends abruptly, though the area of distribution may remain tender, at least the patient is apprehensive of the effect of handling the area to which the pain is referred.

The most frequent seat of the pain of true angina is, unquestionably, along the sternum or parasternal line. It may not radiate beyond the precordium, but if so the arms suffer most, particularly the left. Radiation of pain is neither as marked or extensive as in other forms of angina. Substernal pain is frequent in angina from all types of stenocardia, and the pain may be referred to the stomach or liver.

A vigorous physician of seventy years exhibited typical attacks of angina. He persistently referred the pain to the epigastrium, over which region he was also tender. His pulse was regular and strong with good heart tones. Death was sudden. Autopsy disclosed a ruptured area of myomalacia cordis about the size of a silver half dollar in the anterior wall of the left ventricle.

In many instances we have to study carefully all the factors contributory to the attack in order to determine the nature of the pain. Physical effort is often associated with an attack, yet the more difficult it is to fix any specific cause for an attack the more probable is it of the coronary type.

Angina pectoris is more likely to be associated with a luxurious, sedentary life, or with mental worry or overstrain than with physical labor and temperance in all things. In this respect it might be classed with gout, of which Sydenham said that its victims included more wise men than fools. Heredity bears on the question to the extent of furnishing types liable to arterial degeneration and its consequences, such as the celebrated Arnold family, of England. Men are specially liable to angina because of the nature of the etiologic factors. Hunter's statistics give 237 men to 42 women. The majority of true anginas occur after the fiftieth year of life, though young persons may exhibit those types occurring from valvular disease, pericarditis, toxic, reflex or nervous causes; mental worry or grief may precipitate attacks. A young woman who had suffered repeated attacks of angina had a fatal attack shortly after an interview with her husband, who was suing for divorce. Gout, diabetes, syphilis, locomotor ataxia, specific fevers and influenza may precipitate attacks. The means found effective for relief of the attack may indicate its nature.

The more experience one has with angina pectoris the more full is the realization that it is at

times extremely difficult to interpret its character, and that only ignorance or inexperience can excuse dogmatic assertion regarding it, also that a beneficial psychologic effect is the result of an optimistic attitude of the physician in regard to the individual patient.

DISCUSSION.

Dr. Frank Billings, Chicago: Dr. Patton has so fully covered the symptomatology of precordial pain that I do not wish to take your time in speaking on that point. There are, however, some things of interest to say.

Precordial pain is not necessarily an index of organic disease of organs located in the mediastina. It may be present when there is no recognizable organic lesion of the contents of the mediastina. On the other hand, with severe organic disease of the organs within the mediastina there may be absence of pain. Thrombosis of a branch of a coronary artery, and usually this is a branch of the left artery, may cause immediate severe pain which lasts but a short time. Following this there is no pain, usually, although there is evidence of a failing heart and usually death supervenes within a few hours or days.

If one of the coronary arteries is partially obstructed and the heart muscle receives insufficient blood ischemia with consequent pain may occur. Yet the same condition may occur without pain. A large aneurism of the arch of the aorta may not cause pain. A small aneurism difficult of recognition by physical exploration may cause pain. Dr. Patton has mentioned ischemia of muscle, irritability of the nervous plexus of the heart, coronary spasm as causes of heart pain. When the pain is subjective only, one is nearly always in doubt as to its meaning. If it be objective also one may determine the character of the organic disease of which the pain is an expression. As a rule angina pectoris, which is caused by some appreciable organic lesion of the heart or its blood vessels, usually called a true angina, is excited by anything which calls upon the heart for more work like any emotion, physical exercise, etc., and the pain continues until the cause of over-heart action is removed. In true angina of severe type the patient is statuesque, disinclined to move, breathes very superficially and the pulse is small, thready and of high tension as a rule. On the other hand, angina that we call false occurs most frequently in patients who are emotional and nervous and who, during an attack, are restless, moving about constantly, the face flushed and present directly opposite conditions from those who suffer from true angina.

Precordial pain is one of the most important symptoms which the physician is called upon to interpret and he will make the fewest mistakes in diagnosis who will take the greatest pains to examine his patient, not once, but many times.

SOME PSYCHIC FACTORS OF SURGICAL ANESTHESIA.*

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Gentlemen, Fellows of the Illinois State Surgical Society: I appreciate the honor you have conferred upon me in asking me to read this paper. I do not, however, suppose that it is myself that you are particular about, but I consider your invitation to be the expression of a special interest in the department of surgery which I represent. This thought is to me most pleasing.

Again there is an appropriateness in your wish for a paper on some aspect of surgical anesthesia at this your first annual meeting. Modern anesthesia was the first discovery that made modern surgery possible. Antisepsis and asepsis came later and whether these are more important than anesthesia or anesthesia is more important than antisepsis and asepsis it is futile to discuss. To do so would be like debating which is the more important for the machine shop—steam or the steam engine. All I care to emphasize now is, that, however minute the knowledge of anatomy may be, however clean the surgery is, the number of people who today would submit to an operation if anesthesia did not exist, would be very small compared with the number who because of anesthesia eagerly embrace the opportunities surgery offers.

Once more, this emphasis placed by you upon the details of anesthesia is a part of the interest surgery takes in preventive medicine. It is for the prevention not only of pain which from the very nature of pain was sought ages before modern anesthesia was discovered. It is to prevent undue disturbance to the patient, to prevent undesirable complications on account of and during a necessary anesthesia, the prevention of undue risk to the patient by a faulty administration. And further, this recognition by a society like this of the importance of a correct administration of anesthetics indicates the advance the science and art of anesthesia is making. It is only recently that any attempt has been made, in the United States, to confer upon the administration

*Read at a meeting of the Illinois State Surgical Society at Decatur, May 19, 1914.

of anesthetics the dignity of a specialty. The devotion by a medical man of his whole time to the study and administration of anesthetics was rare in this country until a few years ago, although in Great Britain and in Canada the professional anesthetist has been recognized for a long time. This, together with the demanding by certain states of internship in a hospital in which instruction in anesthesia is given by a visiting anesthetist, before the graduate in medicine can be granted an examination for license to practice; the numerous articles on anesthesia which now appear in medical journals; the formation of societies of anesthetists; all these and other circumstances indicate a scientific interest in anesthetic matters hitherto unknown among us. It must be borne in mind, however, that, in spite of all this the field is new. Much that is written or done is erratic, but such is only the necessary wandering in a region unexplored and therefore little known.

It is a matter of time and of earnest conscientious effort to open up and cultivate this new field of surgery and make it yield its quota toward successful operative procedures. And so as an effort in this direction let me ask your attention at this time to "Some Psychic Factors in Surgical Anesthesia."

First, however, let me say that I do not refer to direct hypnotic influence. It is true that a patient will be calmer, more submissive in the presence of one personality than in that of another. In the broad sense such a condition is indeed hypnotic in its nature, since hypnotism depends for its effect upon the willingness of one personality to suspend its own activity and follow the suggestions of another and the hypnotic state is only the realization of this passivity. Such a simple condition, however, as that of which I shall treat, is so common in everyday life, so within the power of everyone, that to dignify it by calling it hypnotism would be misleading.

The symptoms of hypnotism, in its strict psychological sense, can be made to appear in about eighty per cent of people as they come and go. This means, however, that in these people phenomena can be induced which the psychologist can recognize as hypnotic. To a layman, even to the subject himself, these phenomena usually mean nothing. For producing hypnotic phenom-

ena which will be appreciated by the laity, the number of persons available is comparatively small. A selection of subjects must be made and a certain amount of training is necessary. Further the complete hypnotic state which can be made to involve analgesia is possible in only a still more restricted number and for actual use in surgery would require intelligence on the part of the patient, long training and consequently a pathological condition for which the operation could be postponed indefinitely.

The power which the anesthetist is called upon to exercise, belongs to hypnotism only as any phenomena in everyday life, which involves influence, belongs to hypnotism. Such are the influence the successful salesman exercises over his customers; the orator over his audience; the looker-in at the shop window over others who stop and look because he looks; of the crowd moving in a particular direction which by its movement causes you to join it. These phenomena are indeed hypnotic, but to refer to them as such in practical life would create wrong impressions. So with the dealings of the anesthetist with his patient. I shall treat of them without alluding to hypnotism.

Now in order to make my paper clear let me dwell for a while upon its terminology. Throughout I shall consider the patient's mind as it actually is when presented to the anesthetist, and in all instances all that the anesthetist has to do is to deal with it as it is. He will fail if he attempts to manage it from a theoretical standpoint and make it what it cannot be. There is one fact of great value to the anesthetist. It is that, so far as it is concerned with the anesthesia, the content of the various minds that come before him does not vary much in quality. The intensity of the ideas in them may differ but as a rule the quality does not. In order to comprehend this content let us consider briefly the normal mind.

We all feel that we have present in our mind a large number of ideas. Of these we say we are conscious. As I pen this paper I am conscious of my writing materials, of the table on which I am writing, of an electric lamp before me, of some ethyl chlorid and chloroform on the table, of some of the walls of the room, of the noise of bells on electric cars outside my room and of sev-

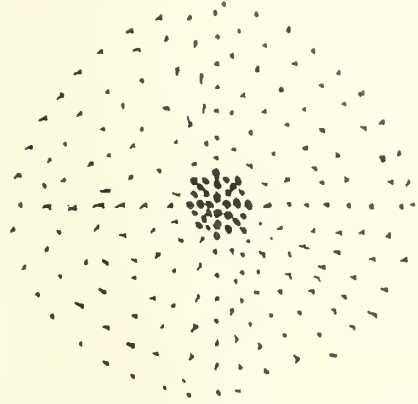
eral other things besides the fact that I am writing. Of these I say I am conscious and I call this group of ideas *the field of consciousness*. Whether all the ideas present are equally clear and distinct is another matter. What it is essential to recognize first, is that I am possessed of a field of consciousness which may be more or less extensive or limited and that this field of consciousness is coextensive with and another name for the totality of ideas of which, at any one moment, I am more or less clearly conscious.

I notice, however, not only that there is a marked difference in the clearness and distinctness of the different parts of this field of consciousness, but that one part stands out pre-eminently distinct above the rest. The subject on which I am writing with my effort to reduce it to visible form especially occupy my mind. This forms a sort of center or focus of my mind. Therefore in the field of consciousness, this special point on which the mind is concentrated I call the *center or focus of attention*.

Further there are continually coming into my mind ideas of which I was not previously conscious and which have no immediate connection with my present environment. They are not due directly to sense impressions. The hissing of a locomotive outside my hotel, an idea which has entered consciousness through an auditory sensation, suggests a locomotive with its train of cars stopping at the station near my house which is several hundreds of miles distant, an idea of which I was not previously conscious. This in turn awakens the idea of the killing of a man by a train at this same station and to whom I was called after the accident. Now the closing of the gates of the elevator in the hall produce not only an auditory sensation but also reminds me of the eagerness with which I awaited the arrival of a friend, also with an accompanying chain of ideas, none of which ideas are immediately connected with my present environment. Now whence did these ideas come? Not directly from sense impression but indirectly. They were present in my mind but were not in consciousness. Some special activity called them forth from somewhere else. This region in which all such ideas are I call the *region of the subconscious* or simply *subconsciousness* and the boundary line between it

and the field of consciousness I call the *threshold of consciousness*.

If now I represent diagrammatically the field of consciousness by dots arranged in a certain way, the indefinitely extended blank space all around it will be the region of subconsciousness,



which by the presence of the proper stimulus will send some of its contents over the threshold to become a part of consciousness.

We note then that there is a field of consciousness which may receive new elements from a realm of ideas of which we are not conscious known as the region of subconsciousness, and when such an idea passes over the threshold into consciousness I say I *apprehend* it. If now that idea becomes the object of attention, or if any other idea assumes such special importance I say I *apperceive* it or it is *apperceived*. By *apprehension* then I mean the entrance of a psychical state into the field of consciousness; and by *apperception* I mean the stationing of a psychical state at the focus of attention, indicated in my diagram at the center of the field of consciousness by a group of dots closely placed, six on any one diameter. The number of ideas that may constitute the focus of attention I call the field of *aperception* or the *scope of attention*. Since Liebnitz, Kant and other philosophers and psychologists have used these expressions in different senses, it has been not only not useless but absolutely essential for me to make known exactly what these terms signify in this paper, if ambiguity is to be avoided.

Let me now consider in detail the psychic phenomena of patients for anesthesia and which the successful anesthetist must have clearly before him. There are several ways along which

I might lead you in doing this. I could begin with the simpler psychical phenomena and proceed to the more complex. This might be the best way were I addressing a body of psychologists whose interest in the subject is purely from the standpoint of psychology. But as it is my privilege to talk to medical men whose interest is clinical I shall consider the phenomena as they occur chronologically before and during the anesthesia and while discussing these phenomena I shall lay down the rules for controlling them.

But let me say right here, once for all, that except under certain special circumstances, which I shall explain fully, I do not believe in controlling the mind of the patient by drugs. It is always best to guide or subdue psychic phenomena by psychical technique.

The first mental perturbation of importance in anesthesia is that due to the disturbing ideas implanted in the patient's mind by friends or visitors. They seem to delight in making it appear to the patient that they have experienced exactly what is before him and they call his attention to all the real or imaginary concomitants that they experienced in connection with their anesthesia. Thus, in the mind of the patient, who, under the circumstances, is peculiarly receptive of such information, ideas are implanted, which cause him to anticipate his coming anesthesia with dread or even with fear. Even if he tries to dismiss them from his mind and succeeds in banishing them from consciousness they remain in subconsciousness to appear during the induction and cause disturbance if they are not held in check by the anesthetist.

Such ideas must be overbalanced by those that are correct and assuring. Success in doing this depends entirely on the *manner* in which it is done. If the anesthetist go directly to the patient and tell him that his friends are mistaken and explain the fact he will fail almost every time. Patients do not believe all that their nurse, surgeon or anesthetist tells them. They may have perfect confidence in them, but one element in this confidence, paradoxical as it may seem, is a belief that it is the duty of the medical attendant to conceal all detrimental information and to make only assuring statements.

In dealing with such a case then, the endeavor of the anesthetist should be to have his patient

believe that he knows his business and that he has perfect confidence in his patient taking the ether well. The method should be by action not words. An illustration will make this clear.

Mrs. Smith is in bed in a ward awaiting operation tomorrow. Her mind is anxious because of the discomforting stories told her about the anesthesia. I go to the ward with the sole purpose of removing Mrs. Smith's fears. As I enter I apparently do not notice Mrs. Smith but go to Mrs. Jones' bed, which can be clearly seen by Mrs. Smith and I examine Mrs. Jones in whom I have no interest, taking care that Mrs. Smith sees me. I start as if to leave the ward and as I pass Mrs. Smith's bed I turn apparently in surprise to see her there and then go and converse with her on any subject except the anesthesia. I leave without mentioning it. When, however, I am about to leave the ward I return to Mrs. Smith and say, "Mrs. Smith, I think I'll tell you that while we were conversing I looked you over and tomorrow you are going to take the anesthetic well." The train of reasoning I thus set up in her mind is this: That doctor is going to give me the anesthetic tomorrow. My friends tell me it is disagreeable and dangerous. If it were so and were I going to do badly under it, doctor would have said nothing to me about it. Since, however, when he was not obliged to tell me about it, indeed did not know I was here, he came back and told me I would be all right, I think I will be for he knows more about it than my friends do." Thus all these detrimental ideas have been removed and assuring ones substituted.

A second source of mental disturbance is the waiting by the patient for the anesthesia after he has been told the anesthetist is ready, or has been removed from his room for it. During this time all sorts of ideas form in his mind and, however false or grotesque they may be, their continuance may so augment their intensity that they may assume the importance of verities and play the part of impressions formed by the senses.

During such a period of waiting the mind is peculiarly receptive of impressions by the senses, particularly those of sight and hearing. For the patient, this interval of waiting is a period of dread, even of terror and fear, and impressions made under such circumstances are deep and lasting. Even if the sensory stimuli be weak, they

leave their impression in subconsciousness and under favorable circumstances a revival of these ideas is possible. It should be remembered by the anesthetist that the persistency of an idea is subconsciousness, the ease with which it can be brought over the threshold of consciousness, the intensity of this idea when it is apprehended, as well as its vividness when apperceived, depend not only upon associated ideas, but also on the condition of the mind when the first impression was made and the clearness and distinctness of the integral parts of the field of apperception at the time the idea is apprehended. It is necessary only to question a person years after he has taken an anesthetic to know how accurately and vividly he can recall circumstances, particularly unpleasant ones, that attended the induction or accrued while he was waiting for the anesthetic. In many cases such impressions remain as only unpleasant remembrances, in others, the disturbance is so great as to be of pathological importance. It must be remembered that such patients seldom are seen afterwards by the surgeon or the anesthetist but the psychiatrist knows them well. At times a subconscious idea, implanted while waiting for an anesthesia assures the importance of an obsession and this may manifest itself only years after the anesthesia. Let me cite an illustrative case: A. B., male, 32 years old, liquor dealer, of robust health, mild drinker, presented himself to a psychiatrist on account of certain obsessions. They were three in number. First, a fear of going to a doctor's office. Second, fear of any sharp instrument, particularly of a knife; a fear that he might be killed by it or an idea that he must kill someone with it. Third, a fear of death. He said, "I can't reason myself out of it." These obsessions were traced back unmistakably to conditions connected with a waiting for the anesthetic at two operations. The first, fourteen years previous, for appendicitis. The patient was told the diagnosis and what would have to be done, but in order to obtain the consent of his parents, he was kept waiting in the operating room for two hours, which were to him as he expressed it "a period of great suspense and dread." The second operation, for hernia, was ten years later, that is four years previous to his application for treatment for his obsessions. His record shows that he was rushed to a hospital sixty miles

distant, taken to the operating room and was kept on the operating table for some time before the anesthesia was started. The patient says, "knives were all around me. I lay there in fear of death all this time. The anesthetic didn't bother me, but *I feared death* and now when any fear or anxiety overwhelms me, I see imaginary knives and fear knives, so that even the sight of a sharp instrument makes me fear myself."

This is a very fair example of the late appearance over the threshold of consciousness of ideas stored away in subconsciousness by the improper care of a patient awaiting anesthesia. The circumstances of terror and fear, in the midst of hospital surroundings which were such as they should not have been, made possible impressions in subconsciousness which entered consciousness and occupied the focus of attention, the moment that any fear or anxiety let down the barriers of the region of the subconscious and permitted them to be apprehended and apperceived.

There is only one way to prevent such a mental condition. It is to keep from the senses of the patient to be anesthetized anything and everything that could disturb him or impress upon him undesirable ideas. He should not be removed from his bed or otherwise disturbed in his regular living until the anesthetist is actually ready for him. He should not be made to lie on a stretcher or on an operating table waiting a delayed anesthesia. In the anesthetizing room there should be no instruments or anything else to suggest operative work. All should be quiet, no slamming of doors, no passing to and fro in the room, no whispering, no talking of operations, anesthetics, or other hospital matters. Everything, even to the most trivial circumstances should make for tranquility of mind, and the leaving of pleasing impressions on the sensorium of the patient. I shall have to recur to this when I speak of the induction of anesthesia.

A third disturbing psychic factor in anesthesia is a lack of confidence in the anesthetist by the patient. If perfect trust is wanting the patient will try to control the induction, thereby disturbing it, particularly when co-ordination of the senses is wanting. This negative condition, a lack of confidence, becomes positive distrust if anything that may be interpreted as deception occurs and early in the induction the patient antagonizes

the anesthetist. To prevent distrust and establish confidence, care must be taken to tell the patient the truth about the anesthetic and this *at the proper time*.

First. The patient should not be told that he will not mind the anesthetic and that he will go right to sleep, for if he is told so there will be trouble. The odor of anesthetics is disagreeable to most people. If the patient has been told he will not mind it, when he inhales it and doesn't like it, he feels he has been deceived. Again he does not go "right to sleep," as he has been told he would, at least as he interprets "going right to sleep." The phenomenon of time is variable. The estimate of the spacing of its components and therefore of its length is not absolute. However many seconds a pendulum may tick, the estimate of time, is not made for the individual by a chronograph. Succession, as a cerebral phenomenon, determines it for him and the estimate differs from some arbitrary standard, as that of a clock, for instance, according to the action of the brain or the condition of the patient's mind. Certain drugs greatly modify it. Cannabis Indica lengthens it; pleasurable states shorten it; pain, anxiety, fear, prolong it. The patient, who is being anesthetized, and who has dreaded the anesthesia, thinks it a long time before he goes to sleep and if he has not been informed rightly, a disturbing cerebration results. He reasons thus, "I was told that I would not mind the ether, but I do; I was told that I would go right to sleep, but I don't;" and he continues, "so the surgeon said the operation would not hurt me, but now I think it will," and consequently the patient becomes restless. This train of reasoning reacts upon itself, calls up or creates other disturbing ideas that in their turn set up new cerebral functionings, all of which prolong and disturb the induction and unless the patient be kept profoundly asleep, even will embarrass the anesthesia by the intermittent play of subconscious ideas.

There is only one way for the anesthetist to proceed. Let nothing be said to the patient about the anesthesia before he enters the anesthetizing room. There let all be frankness. The anesthetist now should approach the patient in a quiet, assuring but matter of fact way, and avoid giving the patient any impression that he is trying to

soothe him into submission. Let him ask him, for instance, if he ever took ether before? If he answers "yes," ask him if he liked it? To this question the replies may be various. Some will say, "No, I didn't, it was fierce." Others, "No, but I had to take it and so I made the best of it." Some may say, "I didn't mind it much."

Or to the first question the answer may be negative. However, whether the reply be, "Yes" or "No," let the anesthetist say to the patient, "Well, now, listen, I have something to tell you, people who take an anesthetic don't like it. They don't like the smell of it and you won't. You may find it *very* unpleasant but if you will breathe regularly and deeply, then what is disagreeable will go away more quickly than it will if you do not breathe well." This simple, plain, frank statement will accomplish two things, it will establish in the patient directly a confidence in the anesthetist and indirectly a confidence in the surgeon. When the patient finds the odor of the anesthetic unpleasant, he realizes that the truth has been told him about it and he believes that since he has not been deceived in respect to what is disagreeable about the anesthetic, also he has not been deceived about the rest of what is to be done.

Again it will secure the assistance of the patient at a time when it is needed. He feels that the anesthetist has put upon him the responsibility of doing away with what is disagreeable. It is not by removal of the mask or by anything else that the anesthetist may do, but by his breathing regularly and deeply that the unpleasant part of the anesthesia may be shortened. And after he has taken a few deep breaths he doesn't care whether he breathes ether or perfume.

A word should be said about the use of oil of orange in connection with the induction of anesthesia by ether. There are three elements that combine to make disagreeable the inhalation of ether vapor. The first is the touch of the vapor with the faucial membranes. This unpleasant sensation may arise from the touch of any gas, even an inert one. I call this "*the tactual element*." The second is the direct irritation of the mucous membrane by the ether vapor. I call this "*the physico-chemical element*." The third is aesthetic in character. It is merely a question of personal like or dislike of the odor of ether vapor. To

some persons the odor of ethyl ether is pleasant, to most persons, however, it is unpleasant. For the majority of those who have been put to sleep by it, it is repulsive especially if harsh methods of anesthetizing were used. In many such persons this feeling of dislike is a complex one, due mostly or even wholly to association ideas. The impressions received at a time of anxiety and dread, and a faulty administration, become associated with the persistent odor of the ether and all is fused into a complex feeling of disgust which is called forth whenever any of the original elements, particularly the odor of ether, impress the sensorium. This I call "*the aesthetic element.*" The value of the oil or so-called "essence" of orange is wholly confined to a masking of this odor of ether. It is able to do so if concentrated and used properly, for the odor of the terpeneless oil of orange is considerably stronger than the odor of ether vapor; how much so it is difficult to determine. The sensations of sight, hearing and some others increase in proportion to the logarithm of the stimulus, but the relative increase in the sense of smell cannot be determined so accurately. I myself am unwilling to allow anything of even so large a range as twenty times as strong as the odor of ether for the odor of the oil of orange. The ponderous nature of the odoriferous emanations of oil of orange and the extremely rapid volatility of ether when absolute, together with the rapidity with which it obtunds the olfactory nerve, must necessarily give too high figures for the oil of orange and too low figures for ethyl ether. There is some difference, however, in favor of the oil of orange.

To use it for masking the odor of ether about two minims of the terpeneless oil of orange or its equivalent of alcoholic extract, should be placed in the inhaler near to the nostrils, but not too near, else a preponderance of the odor of the oil will be had and this itself is irritating to some noses. If the proper amount is used, and correctly placed in the inhaler, the odor of the ether vapor may be so masked that it will not be repugnant to certain patients. There are those who prefer the odor of the ether to the combined odor.

I have been asked: "Would I never control the patient's mind by drugs?" In reply, I say I wish no morphin preliminary to the anesthesia except in three classes of cases. My reasons are these:

1. Patients differ so in their idiosyncrasy to morphin that a correct dose is difficult to determine.

2. It does away with the anesthetist's two most important waymarks. These are the character of the respiration, which varies with the operative procedure, and the light reflexes of the pupils.

3. Unless administered in undue quantity, morphin prolongs the induction and necessitates more ether to be used, since it diminishes both the number of respirations per minute and the amount of tidal air at each respiration.

4. Morphin prevents the patient clearing the larynx if necessary. Should any liquid or solid substance find its way into the larynx during anesthesia, the patient without an opiate can usually be made to cough it up. This is effected by a removal of the anesthetic, allowing a recovery until the vomiting center is reached, then if the patient does not expel it without assistance, tickling the back of the throat and it will be coughed up.

So especially in adenoid and tonsil cases, if morphin be given preliminary to the anesthesia trouble may arise not only during the operation, for the reasons just mentioned, but after the patient has been put to bed, blood, oozing from the nose or throat, will find its way into the larynx and trachea because the patient cannot clear the pharynx.

5. Morphin favors sudden respiratory arrest with a slow, intermittent respiration after it has been restored. This occurs upon sudden stimulation of the solar plexus or hyperstimulation of the sympathetic ganglia which lie on the anterior surface of the sacrum.

6. Morphin favors post-operative nausea and vomiting.

7. Morphin may allow asphyxia during recovery. Should the patient vomit and because of the opiate an inability to completely expel it exist, some may be aspirated into the lungs with serious results.

These are some of my reasons for not using morphin. The three classes of case in which I demand its use are these:

1. Nervous cases with marked physical manifestations. In these, the mental disturbance may precede and cause the physical. Such a case would be an accident emergency. The trauma de-

manding surgical interference may be slight, but the mental shock from circumstances attending the accident may be great and as a consequence the patient has marked respiratory and cardiac disturbances. Or the physical condition may precede and be the cause of the mental disturbance. Such a condition exists in the patient with an ordinary exophthalmic goitre. Many such patients have died while being wheeled from their bed to the anesthetizing room because of the combined fear and nervous bodily state, so I wish such patients to have sufficient morphin before the anesthesia to cause them to go to the anesthetizing room with a tranquil mind.

2. The second class is that of pronounced alcoholics. The disturbance on the table caused by these patients is not an exciting power of ether, but the peculiar cerebation which dominates the alcoholic whenever he is out of a restraining contact with his environment. We see it manifest as he sits in the car without newspaper or companion, in the restaurant if he is alone at the table, when he is in bed about to go to sleep, as well as partially under an anesthetic. It is a peculiar exciting cerebation. Opium prevents this brain activity, so I wish the alcoholic to have morphin to reduce him to a normal subject.

3. The third class is that of young or middle-aged men of a marked athletic type or build. Such, as a rule, secrete a tenacious mucus which forms diaphragms in the smaller tubes of the lungs and prevents an interchange of both ether vapor and air between the lungs and the blood. As a result there is marked cyanosis and the induction is very tedious and difficult. Small doses of atropin will prevent this. But atropin alone, in these cases, will so intensify an already powerful action of the abdominal muscles, and so increase the extent of the excursions of the abdominal walls, that should the parietes be involved in the operation, the ease or success of the surgeon's work will be interfered with. Therefore, for these cases I demand a little morphin, not for purposes of anesthesia, but to counteract any hindrances for the surgeon that the atropin may set up. With these three classes of cases my use of morphin begins and ends. I am sorry to have to use it in these, but of two evils I choose the lesser.

Turning now to the patient as he lies upon the table in the anesthetizing room, it is necessary for the anesthetist to remember that he must deal with the patient's mind as it is. What the anesthetist has to do is to keep below the threshold of consciousness any undesirable elements and to control and guide those that constitute the field of consciousness. He should remember that it is useless to appeal to the patient's will. Frequently the anesthetist explains to the patient what the anesthesia may be like and requests the patient to behave thus and so. Such is of no use. At the time the appeal to the patient is made he understands and intends to obey, but at the time when the assistance could be of help the patient has no will.

The most highly differentiated cells of the central nervous system are affected first by the anesthetic. Of psychic states, the higher the order the earlier are they disturbed or extinguished. Therefore, we find the will crippled first. Very early in the induction it becomes weak and it continues to get weaker until soon it not only is unable to direct and control the movements of consciousness, but also cannot resist the disturbing play of associations and the inroads of ideas from subconsciousness. These psychic states consequently assume undue importance; associations and ideas, whose power to impress a weakened sensorium increases as the volitional control diminishes. The anesthetist must appreciate this condition. If he does he will not rely on any help from the patient and will gain control of the patient's mind before its wild play has caused trouble. This may be stated a little differently for emphasis, because of its importance. At the time when the patient's assistance is needed apperception is not possible except in a very special and limited way. The patient has practically no power of attention, none except as created by something that someone says or does, for it is possible to call forth by suggestion for a short time an effort on the part of the patient which may be called momentary or transitory apperception. It has the characteristics of attention because the psychic state has a focus more or less sharp, but it is only for a moment. Therefore, in this respect it differs from normal attention or act of apperception. This lack of persistency, except as continuance is maintained by external

means, is the important point for the anesthetist to bear in mind.

Therefore, there should be no disturbance present to influence the patient's mind and the necessary control during the induction of anesthesia should be by the anesthetist alone, and it is well for him in assuming this command to know how this realm which, for the time being, he has to govern, differs from a normal mind.

Consciousness is not lost, but disintegrated. The elements of the field of consciousness, as well as those of the field of apperception, no longer work together harmoniously. Unified apprehension and apperception which constitutes the ego what it is do not exist. Therefore, the "I," the personality, is non-existent. Emphasis should be laid on this word "*unified*." There is still apprehension and also a sort of apperception during the beginning of the induction of anesthesia, as has been shown. The field of consciousness is narrowed and continues to narrow as the induction of subconsciousness, which is always responsive to association processes, assumes a more and more important activity and pours its ideas in increasing numbers over the threshold into consciousness which now consists of units uncontrolled by any true apperception and, therefore, are ready to follow any line of association that may be suggested. At this time psychic complications or associations of disparate senses may play not only *an* but *the* important part in the association train. Such associations of disparate senses are more or less common in normal waking existence, but they are commoner during the induction of anesthesia, especially that of chloroform, since then marked hyperesthesia of the senses of hearing and of touch exist. But the difference for the anesthetist to remember is that in waking life they are under control, while during the induction of anesthesia they are not.

A patient at such a time is more like a man in that stage of sleep when dreams are possible, but differs from the dreaming sleeper in that the state of the partially anesthetized patient is more fixed. The complication cannot completely arouse him. To illustrate what I mean, let us recall some everyday experiences. The sound of an explosion is heard. What caused it is not known, but a weak visual image of flying rocks or of a

shattered building and scattered debris accompanies the sound according as the hearer has had some experience with the blasting of rock or a powder mill explosion.

A band is heard in the street. Whether it advertises some circus or precedes soldiers marching is not known, but a weak visual image of a college commencement procession, headed with its band, or the passing of troops is had, according as the one or the other has been an object of marked attention in the past.

We see a violin and are conscious of a weak auditory sensation of its clang. We see some favorite fruit, either natural in a store, or artificial in a museum, and we say our mouth waters, that is, a momentary sensation of the taste or flavor of that fruit is experienced when it is seen. In these instances the disparate senses of sight and of hearing or of sight and of taste have been associated. So a stimulation of any one sense may arouse associated ideas, not only of that sense but of any other of the senses. These disparate sensations or complications may be and are usually very weak in ordinary life. It is not, however, their intensity for the waking subject that is of importance to the anesthetist. It is their existence at all, and especially the fact of their necessary existence. If this is borne in mind, the anesthetist will understand not only how psychic complications can and do arise, but he will expect them and anticipate their coming. He will know that in the patient's going to sleep by the anesthetic a disturbance of one sense may arouse a disturbing train of ideas in that or in any other sense, and that not only the sense aroused primarily, but that activated secondarily may in turn set in operation association trains of ideas which, once started, may become intensified almost indefinitely according to the law of cumulative psychic action. In other words, if during the induction of anesthesia association processes are allowed to get to work, inasmuch as co-ordination is lost, subconsciousness, which assumes an importance inversely as the activity of apperception at the time being, may send over into consciousness ideas of such a kind or in such numbers that dissociative activity may generate from them trains of mental experience, the wildest and most exciting of which the human mind is capable. If the patient should translate any of this psychic

activity into bodily action, as he could and often does do, a so-called secondary stage will result and the anesthetist will have a fighting patient very difficult to subdue.

On the other hand, if all disturbing influences are kept from the patient, and if by any means apperception is kept directed to one idea, all other apprehended units will disappear and the field of apprehension will become narrowed down and finally limited to the field of apperception. Thus the patient will be kept under control until the anesthetic has eliminated all possibility of sense impressions and also subdued the motor centers.

The anesthetist then should talk to his patient during the induction. Never for a moment should he allow the patient's mind to run its own course, for he cannot tell when some vivid idea may arise and upset an otherwise smooth anesthesia. In talking with the patient he should never ask a question or suggest any unpleasant idea. If a question is asked, the patient may answer, but since coordination is lost very early, the speech center is likely to continue its activity and a coherent reply will pass into incoherent talking and then into an inarticulate jabber, which will continue until the center yields to the anesthetic. This, however, is not likely to be soon, since during the activity of the speech center the patient does not breathe deeply or otherwise well, and consequently the induction is prolonged and disturbed.

What then shall the anesthetist say to the patient? If he analyze the content of the patient's mind he will find the answer to this question. There are two ideas prominent in the mind of every patient who comes up for anesthesia. One is that *something may go wrong*; the other *that he may be cut before he is analgesic*. The first idea is a peculiarly oppressive one. The mind that could bravely encounter danger, were the danger visible, becomes fearful and weak if the danger be hidden and particularly if there is a question whether it does or does not exist. Therefore, the patient who as a rule dreads the anesthesia more than he does the operation is in a distressing state of mind, which is not conducive to a good anesthesia.

In talking to his patient the anesthetist should confine his statements to what the patient needs to know, namely, tell him that "everything is all

right." The same words need not be used constantly, but the phraseology may be varied according to the command the anesthetist has over the language the patient understands. However, even this idea must be expressed in sentences comparable with the patient's scope of attention. While for the normal mind the scope of consciousness varies with the way objects are grouped or the rhythm read into successive sounds, the scope of attention is pretty constant, reaching a maximum in six isolated sensations, as six letters or dots for sight, or six beats or syllables for hearing. Now further, for the patient who is passing under the influence of an anesthetic, the number of isolated elements that can stand in the focus of attention constantly diminishes until it becomes zero. This means that the anesthetist in talking to his patient at the beginning of the induction should limit his sentence to six syllables clearly enunciated, and as the induction proceeds should shorten his sentences or phrases to five, four, three and two syllables, and end with only one. Such a series would be:

6. You are do-ing all right.
5. Every-thing is all right.
4. You are all right.
3. All is well.
2. All fine.
1. Fine.

It is best to have important parts of several successive sentences identical. This assists the attention of the patient and emphasizes the salient idea.

By thus talking to the patient, the anesthetist not only keeps the patient's mind under control, preventing inroads of ideas from subconsciousness, but he gives the patient the assurance he needs and prevents his fears disturbing the anesthesia.

The anesthetist hardly needs to be reminded that the syllables should be spoken in a somewhat loud tone and be clearly enunciated. It is essential that the patient understand what is said when his mind is confused by the anesthetic. As the scope of apperception diminishes, the field of consciousness disintegrates and the boundary between it and subconsciousness becomes less definite. Subconscious ideas, then, are more easily apprehended. The anesthetist will understand that by continually reminding the patient that "everything is all right" he cre-

ates for the moment a focus of attention, a field of apperception, which as we have seen is, under the circumstances, practically coextensive with the greatly narrowed field of consciousness. So in thus creating a field of consciousness of such a nature, he for the time being erects a barrier at the threshold of consciousness and excludes subconscious ideas.

Keeping in mind, therefore, this fact of the existence of a continuous series of momentary fields of apperception which continually narrow as the induction proceeds, the anesthetist will understand further why he must lessen the number of syllables in his sentence pronounced to the patient as the induction goes on, and still again why he should take care that emphasis be upon the word representing the salient idea which he wishes to impress on the patient's mind. Hence, at first "everything" and "right" should be emphasized and later "right," "fine," "well."

The second dominant idea in the mind of the patient is that he may be cut before he is analgesic. To care for this mental state, negative treatment is the best. This consists in an endeavor not to permit the idea to be converted from an apprehended idea into an apperceived idea, or if it has sunk into subconsciousness, to prevent its being aroused and entering the field of consciousness. To accomplish this, *let the patient absolutely alone during the induction*. Do not touch him or allow him to be touched for any purpose whatever, except some extraordinary occurrence render it imperative. Also he should not be strapped on the table, and no straps or other possible means of restraint should be visible. There should not be any orderlies or nurses around whose presence could suggest restraint. The patient should be allowed to assume for himself the position which is most comfortable for him, except, of course, if he desires to go to extremes and get into a side or a prone position. This I have never seen a patient do. The only exception to this concerns the head, which, whether comfortable or not, should always be in a position from the beginning of the induction to allow a free airway.

Again, on account of its importance, let me say that by leaving the patient alone is meant not touching him for any purpose. No nurse,

clergyman or friend should be allowed to hold or touch his hand. If sheets or other things about the table are not strictly in accord with the hospital regulations, let them be just as they are. If the surgeon is in a hurry, let the patient alone. Do not attempt to save time by getting the patient "into position" until full surgical anesthesia has been induced. To do so will be to lose time. The only exception to this is that the patient may be scrubbed up while the induction is going on, providing it has been begun and is well under way before any of the anesthetic has been administered. In such a case, tell the patient he is to be washed up and that while the scrubbing is going on you will give him the anesthetic. Then do not begin the administration until the preparation is well under way. Thus the patient when he is partially anesthetized will not misinterpret what the nurse or orderly is doing to him. The scrubbing up will at first be an object of apperception and throughout will remain at least an apprehended idea. Why is this to be done? Because if the patient is touched during the induction, inasmuch as coordination, a regulating contact with environment, is lost, he will interpret a touch of any kind as the beginning of the operation and he will let the aesthetist know that he is still conscious. This he will do by some motion of limbs or head. To his abnormal mental activity, which his surroundings cannot check up, his movements seem small, but as a matter of fact he is thrashing around on the table and restraint may be but is not always necessary. If now he is held he will interpret the restraint as for the operation and the anesthetist will have a fighting patient. Most of the so-called "secondary stage" is due to the patient trying to let the anesthetist know that he is not ready to be cut.

The patient may not lie perfectly quiet on the table. He may move an arm or a leg as he would were he going to sleep naturally. This is of little consequence and need not receive attention unless a leg falls off the table, when it must be replaced. Very gentle handling must be had, however. If an arm or a hand is held up and it is likely to fall on the inhaler or the field of operation, it must be guided to the place where it should lie. To do this the anesthetist or any

one else should never take hold of it. Such an attempt will be misinterpreted and give trouble. Let the anesthetist or his assistant place his own hand where the patient's hand will fall on it and when it has fallen, by a slow, gentle movement guide it to where it should be. The patient distinguishes between the anesthetist touching his hand and he touching the hand of the anesthetist. The former he will misinterpret and respond to; the latter he will understand and will remain passive.

Two more psychical phenomena are of importance in anesthesia. One of these is that an involuntary blindfolding, coupled with fear, causes a feeling of impending suffocation. This is true in the psychological laboratory as well as in the anesthetizing room. It is not a sense of suffocation that results, but a feeling of *impending* suffocation.

The patient just before or at the commencement of anesthesia, does not complain of being choked, if minimum quantities of the anesthetic are administered, but he says: "Doctor, don't choke me," "Doctor, you'll smother me." It is something he feels is *about* to come—not a sensation that is present. If this idea is allowed to form, or to persist if formed, the patient will grab the inhaler or struggle to get away from the anesthetist, and as the anesthetic takes a firmer hold on him complications will arise, and to what extent these associations may go the anesthetist cannot tell.

The patient's eyes then should be left uncovered during the induction. He should be allowed to use them just as he pleases. Since I made my inhaler so that it cannot cover the patient's eyes I have never had a patient complain of impending suffocation.

The last psychic condition to which I ask attention is the horror people have of taking an anesthetic the second time. This is because of the unpleasant concomitants of the former anesthesia. Of course, the way to prevent this postanesthetic antipathy is to have the induction of the anesthesia free from all unpleasantness. The phenomena preceding and incident to induction of anesthesia remain prominent in the minds of patients for years, even when all else connected with the operation has passed out of the mind.

The reason is multiple. First, there is a feeling of dread—dread of the anesthesia, dread of the operation. Then there is the feeling of fear—fear that something may go wrong, fear that the findings of the operation may be unfavorable. Then there is the feeling of complete helplessness. The patient feels he must give himself into the hands of strangers who can do with him as they please; that he himself will have no control over the situation. Then there is that feeling which of all is to many patients the worst, namely, the feeling of voluntarily closing their eyes on the world with the possibility of never opening them here again. All of these ideas make the mind peculiarly sensitive and the most insignificant impression at this time is a lasting one.

Therefore, every effort should be made to render the induction as free from unpleasant circumstances as possible. I have already explained the rationale of success in accomplishing this so far as psychic methods obtain. The only additional point that it is necessary to make refers to part of the actual administration of the anesthetic, the full details of which lie outside the province of this paper. This point, necessary here, is that at first the anesthetic should be administered very slowly. The induction should be gradual. If the anesthetic is ether, there should be no limitation of respiratory air and the ether should be dropped onto the mask very slowly. By doing this the membranes of the respiratory tract will become locally anesthetized so that later the ether may be dropped rapidly for a speedy induction without any irritation from the ether. If this and the other methods of procedure which I have explained are carried out, few patients will shrink from a later necessary anesthesia.

A CASE OF TUMOR OF THE HYPOPHYSIS WITH OPERATION.*

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H. C. N., male, American, aged 41, was referred to me on April 7, 1913, by his family physician for advice in regard to operation for a supposed brain tumor.

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The patient had typhoid fever some years ago, but has been well otherwise, as are his wife and one child, a boy of 16. There is no personal or family history of importance.

The present trouble dates from September, 1911, when he was awakened in the mornings by frontal headache and nausea. He noticed that he was practically blind in the temporal field of the left eye. Thinking that excessive use of tobacco might be injuring his eyes, he ceased smoking and his headache soon stopped. He consulted Dr. William E. Gamble of Chicago, who kindly furnished me his notes, recording symptoms of excessive intracranial pressure at that time, with defective temporal fields, more involved in the left than in the right eye. Vision was Rt. 20/200, Lt. 4/200. Within the next four months, under Dr. Gamble's care, improvement occurred until the vision was Rt. 20/25, Lt. 20/50, with correction for a slight degree of compound hyperopic astigmatism. Dr. Gamble now observed (January, 1912) left temporal hemianopsia and concentric contraction of the right field, the limits being 80° temporal, 50° above, 55° nasal, and 50° below.

In June, 1912, the patient consulted Dr. Casey Wood of Chicago, to whom I am indebted for the following observations: Vision Rt. 20/70, Lt. 20/100, indicating a failure of central vision during the preceding six months. Improvement followed the use of strychnia and electricity, until in September, 1912, vision was Rt. 20/40—, Lt. 20/70—. The fields charted by Dr. Wood show little change in the left eye. The small area in the upper temporal field preserved in June, 1912, was lost so that fields taken in August and October reveal a sharp vertical line through fixation. The color fields were markedly contracted. The right fields show temporal narrowing of the form field, temporal hemianopsia for colors, and a large paracentral scotoma. The chart made in October indicates some widening of the form field and diminution of the scotoma, as compared to the findings in June. The color fields on the nasal side are much contracted.

During all this period the patient was free from discomfort except for his visual limitations. There was no recurrence of the evidences of increased intracranial pressure from which he suffered for one month at the onset in the autumn of 1911.

My examination (April 7, 1913) revealed vision Rt. 20/50, Lt. 20/70, not materially improved by his old correction. Externally the eyes were normal except for the pupils. The right pupil was 2.5 mm. wide in ordinary daylight and did not react to light and very slightly to accommodation. The left pupil was 2 mm. and reacted normally to both light and accommodation. Wernicke's hemianopic pupillary reflex was absent.

Intraocular: The lenses were noticeably sclerosed for a man of 41; the vitreous clear; the discs distinctly gray, edges fairly well defined, but giving the appearance of secondary atrophy following a very mild degree of optic neuritis. There was a gradual slope from the temporal borders to the base of the shallow physiological cups. Some pigment disturbance was noted about the discs, giving a moth-eaten appearance. A few fine, faint glistening spots were seen at the maculæ. The arteries were much contracted and the veins full and pulsating. The difference in the caliber of the two sets of vessels was more pronounced in the left eye.

The refraction proved to be quite different from that found in 1911, owing, no doubt, to changes in the crystalline lenses:

Under hemotropin: Rt., —1.00 sph. + 1.75 cyl. $\times 95^\circ = 20/30$ — last two letters. Lt., —1.00 sph. + 2.00 cyl. $\times 100 = 20/40$ —first two letters.

Postcyclopegic, he accepted the same correction with vision Rt. 20/30 + 2, Lt. 20/40 + 2. Muscle test for far, exophoria, $1\frac{1}{2}^\circ$, right hyperphoria, $1\frac{1}{2}^\circ$. Thus central vision was seen to be practically as good as at any time recorded since he first consulted Dr. Gamble nineteen months before. The fields revealed interesting alterations since Dr. Wood's last record six months previously. In the left there was a slight encroachment upon the nasal field above and below. In the right the form field had receded until there was only a narrow strip remaining above in the temporal half, while in the nasal half the form field was intact and colors moderately contracted. Thus we find very little change in the fields of the left eye in a period of fifteen months, while there has been a marked increase in the limitation of the fields of the right eye in six months. However, it must be noted that the patient, who is a very intelligent man and a careful observer of his symptoms, was positive that the failure in the right eye had occurred shortly after the records made by Dr. Wood in October, 1912, and that no change had taken place within the five months preceding my examination in April, 1913.

The x-ray picture was suggestive of enlargement of the sella turcica, but was not considered conclusive. Dr. Archibald Church of Chi-

cago had examined the patient from the neurologic standpoint and had found nothing beyond the facts already stated. There was a noteworthy lack of evidence of neurologic disorder and of ductless gland disturbance. Dr. Church concurred in the opinion that operation should not be undertaken at this time, in view of the absence of symptoms save in the eyes and the great probability that the process had been at a standstill for a year in the case of the left eye and five months in the case of the right eye. The patient was advised of the seriousness of his condition and urged to remain under observation in order that he might have the benefit of prompt operative interference in the event of any further failure of central vision or encroachment upon the visual fields.

On May 20, 1913, vision was Rt. 20/30 + 1, Lt. 20/40 + 1. The fields showed no material change; there was a trifling increase in the extent of the form fields. The patient was comfortable and continued to attend to his business.

On June 23 he returned with the statement that he had vomited several times and had a sense of weakness in the legs and was very drowsy. Vision of each eye was 20/40. The fields showed some further limitation. The patient was apathetic, with difficulty fixed his attention, and dropped to sleep several times while in the office. I now advised operation, in view of the further involvement of the eyes and the recurrence of symptoms of intracranial pressure. Unfortunately he was delayed by business affairs and several months elapsed. I saw him again on September 23. He had then had more vomiting spells. Vision was Rt. 20/40 + 1, Lt. 20/50 + 2. Now the form fields were more narrowed on the nasal side. He was urged not to delay operation.

In October he went to Boston to consult Dr. Harvey Cushing. On October 4 Dr. Cushing operated by the transphenoidal route, as described in his book, with a mid-line approach under the upper lip. Dr. Cushing has kindly furnished me a description of the operation, from which I quote: "On exposing the sphenoidal cells the anterior wall came away in one large piece, as it had evidently been very much thinned, and the sphenoidal cells themselves were full of the strumous tissue. When this was scooped away

the protruding base of the capsule of the gland was exposed, but all the bony sellar floor had been absorbed. There was one spontaneous perforation in the distended capsule, through which the growth had undoubtedly extended into the sphenoidal cells. Thus dural capsule was split and a large amount of the contents (possibly one-half) scooped away. The mucous membrane was allowed to come together and the wound in the lip closed with a stitch or two. The tissues are very suggestive of a malignant transformation of the struma, and I very much fear that there has been an intracranial extension as well as this extension into the sphenoidal cells. It is probably for this reason that there was very little improvement in the outlines of the perimetric fields."

Following the operation the patient remained comfortable and until now has had no recurrence of symptoms. I examined him on April 29 of this year and found him apparently well except for a tendency to grow tired and to yawn after the attention necessary in having his visual fields charted. He has been taking Armour's pituitary extract, ten grains of the dried extract three times daily. He says that he feels as well as ever, except for growing sleepy. He formerly led an active life, but gave up his business last autumn and is idle much of the time now.

Examination reveals the right pupil 3.5 mm. in width, with no reaction to light direct or consensual and very faint reaction to accommodation. The left pupil is 2.5 mm. and does not react to direct light. It reacts very faintly when light is thrown into the right pupil and very faintly to accommodation. The fundi show the same appearance as in April, 1913, except that there is not quite so much difference in the caliber of arteries and veins. With the old correction vision is Rt. 20/30 + 1, Lt. 20/40 + 1. A slight change in his lenses gives better vision: Rt.—1.50 sph. + 2.00 cyl. $\times 100^\circ = 20/25 - 2$. Lt. — 1.50 sph. + 2.00 cyl. $\times 105^\circ = 20/30 + 2$

This is the best vision recorded at any time since the onset of his trouble. There has been a slight widening of the form fields and a distinct improvement in the blue fields since operation.

Dr. Cushing is not hopeful of a permanent result, because of the likelihood of malignancy and

the failure of rapid improvement in the fields after operation.

Several interesting features present themselves in a study of this case. Such extensive involvement of the pituitary body and its surroundings generally causes profound neurologic disturbances and changes in bony structure and the sexual functions, all of which are wanting in this case. There are no acromegalic changes, no adiposity, no alteration in the patient's sexual life. It is to be regretted that opportunity was lacking to make prolonged temperature records and study of the carbohydrate tolerance. The symptoms of excessive intracranial pressure were present for only a few weeks at the onset and were absent for a year and a half, when they recurred with greater severity. This may perhaps be explained by the supposition that the growth quickly penetrated the very thin sellar floor and had room to grow in the sphenoidal cells. The freedom from pressure symptoms was coincident with the rupture into the sphenoidal cavity and was maintained until this cavity was filled by the tumor mass, when pressure symptoms again occurred.

The result, as far as vision is concerned, is very satisfactory at present. A bitemporal hemianopsia remains, but surprisingly good central vision. The ultimate outcome is decidedly doubtful. Further operation may be necessary and its effect is by no means certain. Dr. Cushing tells me that he has had some success from radium, the tube being inserted into the cavity after the operation.

People's Gas Building.

DISCUSSION.

Dr. J. Holinger, Chicago: It was my privilege to make hearing tests in four cases of tumors of the hypophysis, and in every one the tuning-fork tests were characteristic, in that the hearing by bone conduction was very much shorter than in the normal. In different affections of the brain and skull, recent and old fractures of the base of the skull, tumors, internal hydrocephalus, etc., the short Weber-Schwabach in the better ear was universal. You will agree that an early diagnosis in these cases is as important as anything in our dealing with the subject, and if this test can help to make a diagnosis earlier than many others, I think it ought not be forgotten in any case that is suspicious of brain tumor.

Dr. Emory Hill, Chicago: I agree with Dr. Holinger that the hearing test is an important procedure in determining the diagnosis. One excuse for reporting a single case of this sort is the observa-

tion that eye men are not making very frequent diagnoses of this kind. They are not making early diagnoses. I was astonished in studying the literature of hypophysis symptoms from the standpoint of the eye to discover the great number of symptoms that may be found. We have a tradition that bitemporal hemianopsia means lesion at the chiasm, which is true; but that is a late manifestation. We do not always see the case in that stage. We do not get it in both eyes very often, and there are premonitory symptoms long before that; slight visual field defects on the temporal side which are not hemianopsia, scotoma, central or perhaps elsewhere in the temporal field, narrowing of the temporal field for colors more rapidly than for form. All these things, together with ocular muscle palsies, show the involvement of the pituitary body and with exophthalmos and pupillary inequalities and optic nerve changes are the points on which it is often possible to make a clear diagnosis of hypophyseal lesions; and in a great majority of cases it is distinctly up to the eye man to make these observations, because, as in this case, other than eye symptoms may be lacking and no one else will advise operation.

THE PROBLEM OF THE STAMMERING CHILD.*

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The problem of caring for the stammering child is rendered more difficult by reason of the lack of interest in the subject on the part of physicians. Scattered here and there through the cities and towns and country the problem arises, and especially in the smaller communities no one is at hand excepting the physician who may be appealed to by the parents for advice. If the physician fails, the parents are too often at the mercy of the often unscrupulous or ignorant advertiser. In certain European countries the medical profession is much more conversant with this and allied subjects. Only recently in America and as yet in but two or three medical schools has the subject of defects of speech begun to be taught as a regular part of the undergraduate instruction. Nevertheless the subject properly belongs with the physician, and no adequate machinery exists or is likely to exist, especially in the smaller communities, by which parents may be advised concerning de-

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fects of speech in their children excepting through the medical profession. Consequently it seemed to me that one would be doing a needed service in attempting to present the problem of the stammering child with the point of view of the general physician in mind.

Seriousness. The seriousness of stammering is worth considering carefully. A disease or injury or deformity which interferes with the child's walking and threatens to produce permanent limping is considered a serious matter, but a disorder which interferes with the child's talking and thinking and social progress is deemed of little consequence. And yet, facility in talking is of greater importance to the man or woman than facility in walking. One who has come in contact with the various grades of difficulty experienced by stammerers in talking, from those who exhibit the slightest hesitation to those who can scarcely utter a word, will not doubt the sincerity of this comparison. Again, from the standpoint of the subjective mental disturbances produced by lameness and those due to stammering (not here considering physical pain), the stammerer has much the worse of it, for his mental sufferings are severe and often extreme. By no means the least serious effect of stammering is to be found in its subtle effect on character. But few stammerers develop that easy, natural, unabashed attitude towards people so important to comfort and success in the affairs of life, but more often they develop a habit of retirement, of timidity, not uncommonly morbid, and resulting in voluntary social isolation. From the standpoint of social and business advancement, the stammerer is too often in a pitiable situation. His timidity interferes with reasonable aggressiveness and the stammering excludes him almost inevitably from making the advances in the world he would otherwise be entitled to make. One does not wonder that stammerers now and then elect to take their own lives, rather than continue their discouragement and sufferings.

The Nature of Stammering. The understanding of stammering is dependent on the understanding of child psychology. But child psychology is exceedingly difficult of understanding. It is probable that the onset occurs ordinarily only after a certain stage in the mental development,

which causes the child to become socially emotional, that is, emotionally disturbed by the mere social contact with others in the same manner as occurs with adults. For every human being has a social fear of every other human being, though in degrees varying with the individual and with the circumstances. In view of the fact also that stammering practically always starts before the speech has fully developed into its permanent, settled form, it may safely be said that the cause of stammering lies in the interrelationship between the still developing function of speech and the immature emotional disturbances arising from social intercourse. It is due then to the immaturity of a normal emotional manifestation reacting upon the immature function of speech at the time in activity. I am aware that such an explanation of the cause of stammering leaves very much unsaid. For it is true that in a varying degree both of these conditions hold for all children. What other more obscure conditions must be operating to cause a relatively small percentage of children to stammer, while the great majority remain exempt, are very important questions, but questions so difficult of answer as to still remain not clearly solved.

The latest promulgated theory regarding the determining cause of stammering that stammering is excited because of a temporary verbal amnesia (Blumel), like the older theories, that stammering is the result of a lack of coordination in the time of action of the vocal and articulative mechanisms of speech, or that stammering is a psycho-neurosis, or that stammering rests upon auto-suggestion, in no manner excludes the fact that "social emotion" is at any rate the fundamental exciting factor, without which the other factors would not operate.

Manner of Manifestation. Irregularity of manifestation is the inevitable characteristic of a disorder founded upon emotional disturbance. When the emotion capable of exciting the disorder is completely in abeyance, the phenomenon does not occur, and the severity of its manifestation is measured by the degree of intensity of the emotion present at any time. This explains the absence of stammering when the patient is talking or reading to himself alone, or talking to his dog or to a young child, for a

cause for "social emotion" is then absent. And it explains the fitful variableness in the intensity of the manifestations of the disorder. The practical freedom from stammering while singing is less easily explained, but probably rests on much the same ground. More than one reason operates to quiet the stammerer's fears. For example, the manner of voice production is altered in his singing from that in his talking, thus obscuring the ordinary emotional speech grooves, the vowels are prolonged, which even in ordinary conversation eases the stammering, and the lack of necessity for vowel precision in singing may play a part. (Bluemel.)

The fitful variation in the manifestation of the disorder is the source of much confusion and misunderstanding. It is reasoned, wrongly, of course, that since the disorder is in abeyance so much of the time, one may expect it to speedily disappear altogether. And sometimes it is reasoned, also wrongly, that a disorder controllable at one moment should be always controllable, and so punishment may be resorted to, which, as a rule, increases the emotion and consequently the stammering.

The onset is usually by light repetitions of the consonant beginning the word, perhaps infrequently manifested. The speech itself may or may not be rapid. The child may or may not appear to be excited. While one should bear in mind the possibility of a so-called "physiologic stammering," resulting from the failure of the speech to keep up with the mental action of an excited child, yet persistent repetition of the beginning letters of words, even though seemingly of no consequence, or hesitation in bringing out the word, calls for intelligent watching. And observation will be likely to disclose an insidious disposition for the hesitation to become more firm and more often manifested. Under certain circumstances this disturbance will be absent entirely, and it will be likely to be manifested more with certain persons and especially with strangers. Entrance upon school life will be prone to increase the manifestation, or to first cause its appearance in a normally speaking child, because of the increased emotion aroused by the added social excitements of this new phase of life. If the manifestations remain light and infrequent, with no tendency to in-

creased severity and frequency, one may hope for spontaneous cure within a reasonable period of months or years. But the statements of the parents are not reliable as to the stationary disposition of the disorder, and the physician desirous of appeasing the anxieties of the parents is too often falsely reassuring. More often the repetitions become very gradually more firm, until they tend to be replaced by an actual momentary fixation of the speech organs. A *habit* of stammering gradually develops and the social emotion is increased by the stammering itself. In the more severe manifestations the speech is stopped by spasm in a group of muscles during a measurable period, which may extend to a quarter or half minute or longer. The patient sometimes is seen to outwardly struggle, at other times one witnesses no movement of struggle, but only waits for the word delayed by the inability of the child to go on.

Mental Condition. We may now in a measure look in on the mental status of the child who stammers. Acutely sensitive, the sensitiveness, however, often studiously concealed, the child realizing its probable inability to talk smoothly greatly exaggerating the importance of his defect, torn by the fear of lack of appreciation or of ridicule, is the suffering slave of an exaggerated emotionalism. We are dealing then, not with a subnormal child, not with a diseased child, not with an extraordinary child at all, but with a child differing from others chiefly in the intensity and painfulness of its emotional life, rendered so by a disorder threatening to continue and produce serious effects on the development of character and serious retardation of success in the adult years.

Prognosis. What is the outlook for the unfortunate sufferer? This depends upon certain factors not always easy to make out. First, the natural temperament of the child, whether naturally highly excitable, or whether naturally shy and diffident. Second, upon other psychological factors, for example, unusual auto-suggestibility, or marked inability to recall the auditory image of the vowel sound (Bluemel). Third, upon the intensity of the spasms manifested in the stammering. Fourth, upon the prominence of the habit feature, and, finally, upon the favorable or unfavorable conditions of the environment. The

difficult of recovery is by no means always measurable by the prominence of the outward evidences of stammering. Concealment of the inward struggles is common, and the factor of subjective disposition to resist the disorder is hard to gauge. One is safe only if he subjects every case to intelligent observation, letting the developments determine his attitude towards the case.

Undoubtedly one sees many more children than adults who stammer among individuals who have had no treatment for stammering. Therefore, undoubtedly gradual recovery without especial treatment is not uncommon. The most important natural therapeutic agent operating for the cure of stammering is the growing maturity of the child, tending to bring about a more natural adjustment to his social environment. But this agent often develops late and very slowly and is much hampered so far as its effect on stammering is concerned by the element of habit involved in the disorder. Certain cases show an early disposition to lighter and less frequent spasms and eventually after a period of years recover. Others continue painfully, gaining a little on the disorder until in the mature years there is required only occasionally an inward need of struggle. The number of persons who continue visibly to stammer after, let us say, thirty-five years of age, while large in the aggregate, is relatively small in its proportion to the whole number who have stammered in childhood.

Under competent and sufficiently maintained treatment, the prognosis is altogether improved. But statistics in this connection are wholly unreliable. The difficulties of treatment are dependent upon the factors mentioned above and are dependent especially upon the factor of subjective willingness and persistence in carrying out the treatment undertaken. Practically all stammerers may be much helped and the percentage who may be cured, always providing that one can secure the right co-operation, is exceedingly high.

Is Treatment Necessary? Since recovery may occur spontaneously, it is sometimes asked whether especial treatment needs to be undertaken, excepting as a last resort. Consider that post mortem statistics show that pulmonary tuberculosis has been present at some period in the life

of many persons and has healed without especial treatment. Or serious adenoid enlargements commonly disappear without operation. As no one can say which patient shall certainly recover from tuberculosis without treatment or how serious the unhindered continuance of the disease may be upon the constitutional vigor of the patient, or, in the case of adenoids, which cases shall not have chronic nose and throat disease resulting from the adenoids, or which shall not be deaf, or which shall not develop imperfect alveolar arches, so with the stammerer no one can say which case shall recover and which shall not, or how long the spontaneous recovery shall take, or how serious the intermediate results shall be upon the development of character, upon intellectual and social progress, or upon business success. The safer plan is to consider each case as containing within itself serious possibilities and refuse to run unnecessary risk.

Treatment; General Principles. When it is realized that stammering is not a disease, but is a perversion of a complicated function arising from emotional disturbance, one is in a position to understand that treatment must be applied from within by the stammerer himself rather than without by the physician. Two fundamental lines of attack are open. One, upon the conditions tending to arouse emotion, and, two, upon the perverted speech function itself. Treatment attempts, then, on the one hand, to inculcate in the sufferer such educational and suggestive ideas as shall enable him to so readjust his mental attitude with respect to the people about him that the emotion shall become reduced and more controllable, and attempts, on the other hand, to place in his possession a direct conscious command over the unruly speech function itself. Indeed, the conscious command over the speech which is given the stammering by adequate methods of training reacts towards quieting the emotion which produces the disorder. These two basal principles of treatment are in practice conjoined so as to react favorably on each other. This is not the place to go into the highly technical questions involved in the training of the speech apparatus, or into the many details of competent psychological training. I know of no problem demanding more insight into human nature, more tactful consideration of the various factors involved, more resourceful in-

genuity in meeting individual situations, or more patience and sympathy, or none where experience counts for more.

What Can the General Physician Do? Looking at the treatment aspect of the problem from the standpoint of the general physician, I presume that most general physicians will not find the time to become experts in the solving of so special a problem. But they can all be of great service to their clientele by being broadly intelligent in their advice. Too often the physician has laughed the matter off as devoid of serious importance, but such an attitude is unworthy of an intelligent profession. The physician should rather inform the parents regarding the nature of the disorder, the probable outlook, call attention to the need of guiding the child away from causes for emotional disturbance, point out the need of tactful gentleness in handling the child, encourage rest and healthful conditions of life generally. If he will study the conditions of the child's life from the physical standpoint, but especially from the emotional standpoint, he may be able to eliminate from the child's life some determining cause of emotion and thus be of very great service. Sometimes, for example, the removal of adenoids will ease the child's speech and reduce the emotion. Let the physician have the mother take the child apart and cause him to read, or to tell, a story or to converse slowly and quietly, preferably in a low voice, for a brief period each day. Let the physician have the mother try to quietly turn aside conditions which excite the child. It may be that reciting before his class in school is the greatest cause for emotion, or perhaps it is the ridicule of his playmates, or jarrings between himself and his brothers and sisters. If the progress of the stammering continues, let the physician be able to give the parents adequate advice as to what should be done further.

Time of Treatment. It is highly desirable that treatment should be undertaken as early as possible. The ideal plan would be, by taking the trouble at its very inception, to prevent the settled establishment of the disorder. No matter at what period the treatment is begun, one may expect at least a somewhat protracted struggle with the disorder. But if treatment be begun early, the severer manifestations can usually be

prevented, and recovery be attained earlier in life, and with less detrimental effect upon the character of the developing child.

Institutional Treatment. There are good reasons why the child should, if home conditions are favorable, be treated without removal from his home environment. A stammerer who recovers under the identical conditions under which the development of the disorder has taken place is relatively much more secure in his new speech. Capability of control is quite another thing from cure. The attainment of control in the protected environment of an institution may be extremely easy to attain, but this is no criterion as to success in fighting the real battle which must come when life is again taken up in its ordinary activities. This explains why practically all so-called "cured" institutionally-treated stammerers relapse upon returning home. And this explains why it is necessary that every stammerer under approximately fourteen years of age who seeks treatment away from home should be accompanied by an adult member of the family, who shall become with the sufferer a student of the plan of treatment and shall use her knowledge in guiding him upon their return home. Self-control must go on until the tendency to stammer is overcome, whether this requires months or years. And it is highly desirable, and sometimes necessary, that a guiding oversight should be exercised by the speech physician during the whole period, very much as the physician guides the patient through a prolonged disease. If the stammerer seeks treatment away from home, the period of treatment should be determined by the conditions in each case, but it always must be considered that this period of treatment, so far from being final, is only the outlining of a period of careful self-control which shall end only with the disappearance of the tendency to stammer.

Pitfalls. It is now only necessary to point out certain pitfalls which are planted for the unwary. I know of no disorder in which conscientious sincerity, both as to knowledge and to the practical application of that knowledge, is more important to success in treatment. And I know of no disorder which lends itself more readily to the exaggerated and ignorant claims of insincere commercialism. Beware of the advertiser who "guarantees" a "cure" in a few lessons or in a

few weeks. To sincerely guarantee cure is absolutely impossible, because cure depends primarily upon adequate cooperation on the part of the stammerer, and this no one can measure beforehand. The value of the "guarantee" is to be gauged only by the knowledge and sincerity of the guarantor, who is only too likely to be well loaded with subtle explanations and excuses which develop later and show the "guarantee" to be utterly devoid of sincerity. Beware of the advertiser who promises to "cure" in a few lessons or a few weeks. The very nature of the disorder, its dependence upon emotional disturbance, as well as the element of habit involved, makes it clear that the disorder can be eliminated only by patient, day by day exercise of educated self-control. Usually not a few weeks, but rather months and sometimes years, are required for the complete suppression of the disorder. I doubt whether a stammerer, excepting perhaps one who happened to be on the point of spontaneous recovery, ever was cured in a few weeks. Be wary also of the advertiser who makes an extraordinary showing of testimonials. Testimonials may be honest or dishonest. If through advertising a following becomes quite large, it is not difficult to obtain a certain number of even honest (though sometimes misguided) testimonials. And then there remains, as with the patent medicine advertiser, only the adroit employment of such testimonials in advertising so as to make it appear that practically all patients fare equally well with those testifying. And this misrepresentation is possible, even though only an occasional patient does really recover. Moreover, the value of the advertiser's cure of himself as an indication of his capability in treating others for stammering (and this factor is prominent in the claims of certain institutions) may be rightly estimated when we realize the numbers who have under the influence of advancing years spontaneously recovered without any especial method of treatment. Finally, beware of the institution which attempts to pledge its patrons to the maintenance of secrecy concerning the methods employed. Such institutions not only have no method of treatment worthy of concealment, but such a plan savors too much of pretense and sordid commercialism to be dependable. But I, by no means, wish these remarks to condemn all institutions

or all individuals who advertise themselves as treating stammering, but only to point out that far from all of them are worthy of confidence. To have failed to recover after treatment is not without its serious effect on the child. Such patients are prone to be more depressed, more pessimistic regarding recovery, and harder to manage in subsequent efforts at treatment.

104 S. Michigan Ave.

ABSTRACT OF DISCUSSION.

Dr. Frank P. Norbury, Springfield: I have had considerable experience in the types of cases mentioned. The point I think worthy of mentioning is the early treatment during the nascent period of childhood (between the ages of eighth and twelve), when children are more susceptible to training along the line of the emotional reactions and in general physical welfare. I think many of these cases respond to what we may call the unconscious command, in the form of suggestion when the child is in bed and on the point of going to sleep. The mother, nurse or physician, sitting at the bedside, gives the suggestion or command, just as I have practiced it in the treatment of tics. Voice culture I believe is of great importance, and especially learning to sing, whether the child has had any musical experience or not. We all know that the man who stammers or stutters can sing without any difficulty. This is based upon the fact that the stammering individual always speaks in an abnormal voice.

Then, above all, we must study the child from the viewpoint of genetic psychology and thus ascertain all that we can regarding the child's welfare, considering his environment (his home and school life), in order that we inculcate correct methods of thinking and doing. Then again find out about his forebears and thus be forewarned as to his needs for the future.

Dr. Jesse P. Simpson, Palmer: I agree absolutely with Dr. Kenyon's suggestion that there is a great advantage to be gained in treating stutters early. We had a case in our own family. Our baby, Dorothy, began to stutter when she was about four years old, and we undertook to have all the family cooperate in the cure. So her brother, two years older, agreed that he might help, and we told him that "when little Dorothy begins to stutter, you should ask her to talk slowly, and if she does not do it you will have to punish her." So a few days later Dorothy came to her mother in much distress and reported that brother had whipped her. "Well what did he whip you for?" asked her mother. To which she replied: "C-cause I was a-t-tutterin'." The treatment soon proved effective, however. I think it was not more than a month before we had her broken of the habit entirely.

Dr. Benjamin H. Breakstone, Chicago: I speak with a good deal of feeling on this subject, as I believe that Dr. Kenyon has done us a service in bringing this matter before this body. There is hardly a hamlet or a little town where there are not several cases of

this kind, and the saddest part of it is that we can see a cripple and we sympathize with him, but if we see one of these cases, even among quite intelligent people, we are bound to smile and just snicker at him, and that only tends to increase the trouble. Now, I believe that all of these cases can be cured, if it is not due to an extraordinary cause, and if it is an ordinary cause, whether it is due to faulty respiration, articulation or phonation. If the cause is a removable one, they will be cured as far as the anatomical condition is concerned, but it still leaves the patient with a habit which is the hardest part of the trouble to cure. Habits, as you all know, are the result of environment, and the quickest way to cure these patients is to take them away from the environment which has produced that habit and train them out of it in classes. If you place them among other people of the same kind, where they can sympathize with each other, they will help each other; each one will take care of the other one. It is true of all of us that we pay more attention to any other kind of a nervous ailment, we take care of the habit of St. Vitus' dance, and we take care of other neuroses, but we do not pay any attention to cases of this kind, which are a good deal more important, for the reason that there is nothing that has such a great effect upon the patient's future as this habit.

Dr. Albert M. Wickstrom, Chicago: I have always felt that some of us get up to speak without knowing whereof we speak, but that Dr. Breakstone knows his subject, we all have to admit. For my own part, although it is embarrassing to tell about oneself, I was a sufferer from stammering from childhood up. For a while I was unable to say two words to anyone without suffering from stammering. No one realizes the suffering of a stammering child who has not been through it himself. No one realizes how a child wishes to be alone and often becomes morbid mentally because of this defect. I do not believe, as a good many have said, that a stammering child comes in every case from defective stock. I believe that a good many children coming from good stock receive psychic injuries in early childhood through fright or terrors, as in my own case. I was frightened very badly when I was only about two and one-half years old, so that I was almost unconscious, and after that time stammering began. For the last ten years I have been able to get along without suffering much from it, and I would say that in my case I sought medical help, but no one seemed to understand how to help me. It was a teacher of phrenology that taught me to understand where the weak points lie, and who taught me that I must be educated out of it. It was an oversensitiveness to my surroundings and a lack of self-confidence and self-appreciation that always put me in this embarrassing state of mind, and since learning to understand the cause of it, it has been possible to overcome it, and I want to tell you, friends, that we ought to understand our patients better in order

to be able to help them, more especially among the children who come to us with this ailment.

Dr. Elmer L. Kenyon, Chicago, closing: I am especially pleased to have two stammerers face this audience and discuss their own experiences. It helps to emphasize the seriousness of the problem, and I do think that if stammerers themselves would pay more attention to analyzing their own states of mind they might help a very great deal towards solving the etiology of the disorder.

I think Dr. Norbury's idea as to twilight suggestion, or as to suggestion being given at bedtime, is one excellent manner of using suggestion. As to his idea concerning singing, I do not know whether he means the child should sing his speaking. If so, I would quite seriously disagree with him, because for the child to sing his speaking emphasizes his emotion; but I do say this, that the fundamental basis for correct handling of the voice is the same, whether we speak or whether we sing; consequently the same fundamental principles carried out in cultivating the singing voice should be carried out in cultivating the voice in the treatment of stammering. But, of course, we should go further also.

There is much which is omitted in this paper, of course, necessitated by its brevity. The experience of Dr. Wickstrom in having his stammering incited by fright is a very common experience and a very striking factor in the causation of stammering.

RADIUM, SOME OF ITS USES IN SKIN DISEASES.*

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CHICAGO.

Realizing that the remarks to be presented at this time are addressed to an audience some of whom are perhaps not specially trained in technical dermatology, my subject will be approached from a somewhat different viewpoint than if prepared for a company of dermatologists.

Radium gives off spontaneously and continuously two different forces—the emanation and the rays. The emanation emitted by radium being principally used at the present time in internal medicine will not be touched upon. The rays given off by radium affect the photographic plate, cause fluorescence in certain substances and ionize air, thus rendering it a conductor of electricity. They also affect living tissues in a peculiar manner. The rays from radium thus present certain analogies with sunlight and with x-rays. They are not, however, identical with

*Read at the sixty-fourth annual meeting of the Illinois State Medical Society, Decatur, May 21, 1914.

these agents. Radium is used at the present time in skin diseases by simply applying the radium apparatus directly to the skin, so that the rays may penetrate the diseased tissues. Different kinds of radium rays may be distinguished which are known as alpha, beta, and gamma rays. These differ in many particulars, but principally in their power of penetrating opaque objects. The alpha rays are stopped or absorbed by a thin sheet (1/20 m.m.) of aluminum. The beta rays will go through 1 or 2 m.m. of lead, while the gamma rays are not completely stopped by as much as 10 c.m. of lead. This difference in the character of the rays has led to interesting considerations in their therapeutic use. By interposing metal screens or filters between the radium and the skin, the slightly penetrating rays, i. e., the alpha and some of the beta rays, may be absorbed by the metal, while the very penetrating beta and gamma rays may filter through and produce a deep therapeutic action without visibly affecting the skin.

Radium apparatus for use in dermatology is of various types, but the so-called varnish apparatus is the most convenient and effective. In these applicators the radium grains are incorporated in a special fixing varnish and distributed evenly over the surface of a small metal plate. This plate varies in size from one to several centimetres in diameter, while the shape is usually square or round. A single applicator usually contains 5 to 20 or more milligrams of radium sulphate. Instead of metal, the body of the apparatus may be made of linen, to which the radium in its varnish is adherent. This so-called "toile" makes a beautiful and flexible, but very fragile apparatus.

Radium therapy is adapted to many types of dermatoses. Some of these have hitherto been practically incurable. Among the diseases in which it is of great value may be mentioned the following: 1. Epithelioma. 2. Keloids and permanent scars. 3. Lupus erythematosus. 4. Naevi, especially vascular naevi.

These four groups of diseases may be briefly touched upon.

1. Epithelioma. It has now been demonstrated that radium is a very efficient agent in epithelioma of the skin. Up to the present time I have treated about forty cases with success in

all but two. In neither of these two cases was I able to carry out the radium treatment with sufficient vigor. The beautiful results to be obtained with radium in epithelioma can only be compared to the similar results that have been obtained with x-rays. Which is the more efficient agent, it would be premature to try to decide. Doubtless both have certain spheres of superiority. Cases have been reported in which x-rays are said to have succeeded when radium has failed. Almost all who have had experience with radium have succeeded in healing cases in which x-rays have failed. It is perhaps one of the problems of the future to determine which agent is best adapted to individual cases.

Radium has by no means taken the place of surgery in the treatment of cancer. All operable cancers with tendency to metastasis should probably be treated by surgical excision. Radium is, however, a great adjunct to surgery, either before or after operation. Cancers of the skin without tendency to metastasis may usually be healed by radium, while the cosmetic result is almost ideal. Inoperable cancers in almost any situation may be subjected to radium to minimize suffering and perhaps prolong life.

Epithelioma of the skin may be healed with or without visible inflammatory reaction, depending largely upon whether one applies the radium unscreened or with a screen. An ordinary epithelioma of the skin two or three centimetres in extent and not too deeply situated may be healed with an unscreened applicator containing 10 to 20 milligrams of radium in six to eight treatments of an hour each. If the radium is screened with 1/10 m.m. of silver, the same result may be accomplished in about ten or twelve hours. It is possible also to heal an epithelioma with only one or two massive exposures of screened radium of several hours each. Generally speaking, it is preferable to use screened radium in many cases of epithelioma in order to limit the inflammatory reaction.

2. Keloids and prominent scars may be briefly mentioned. These usually yield to radium and furnish one of this agent's most conspicuous successes. Certain keloids will melt away even without inflammatory reaction. Even the most refractory keloids, which are often combined with scar tissue, will usually yield to the com-

bined selective and destructive action of radium.

3. Lupus erythematosus is of all skin diseases one of the most capricious and rebellious. Cases will occasionally recover easily under the simplest treatment, or even spontaneously, and other cases will resist almost every therapeutic agent. Occurring, as it usually does, on the face in the form of red, scaly, persistent patches, it forms one of the most distressing and disfiguring of skin diseases. The disease itself frequently produces scars, so that it is difficult to heal cases of long duration with a perfect cosmetic result. Sometimes, however, an almost perfect result can be obtained. Radium promises to be a great addition to our armamentarium in combating this disease. I have now treated over twenty cases. A few have been healed with an almost perfect result, while some have recovered from the disease with more or less scarring. In none has the disease been made worse, an occurrence which is not infrequent with some other forms of treatment. Unfortunately recovery from lupus erythematosus is not always permanent. Relapses may occur after apparent recovery, but these so far have yielded to a reapplication of the radium. The fixed type of lupus erythematosus is the most favorable for radium which must be used in such a manner as to destroy the diseased area.

4. Angioma or nevus vascularis. The results obtained in "birth marks" of various types, including "port wine stains," as they are sometimes called, are better than heretofore obtained by any method. The action of radium in this group of diseases is one of the culminating points of radium therapy. Some types of angioma are amenable alone to radium, while in other types it furnishes the best means at our disposal when one considers the painless character of the treatment and the beauty of the cosmetic result. Flat angiomas (port wine stains) are best treated with "toiles," i. e., with radium having a weak radio activity spread on linen applicators. The curative reaction can be limited in these cases to simple erythema and desquamation. With elevated angiomas a certain amount of destruction must often be produced in order to level the surface and bring about sufficient decolorization. With heavily screened radium even subcutaneous angiomas can now be treated successfully. The

painless character of the treatment enables it to be used with special success in the angiomas of children.

59 E. Madison St.

PERSONAL AND CLINICAL EXPERIENCE WITH MILK SICKNESS.*

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HOOPESTON, ILL.

Having lived twenty-nine years in a locality that had frequent outbreaks of a peculiar disease or malady almost forgotten by the general public, which a comparatively small number of physicians have had experience with clinically, and owing to the fact that I had the disease myself and lost my father at the same time, four other members of our family being afflicted, the death of one farm hand, the sickness and death of several neighbors, much loss of live stock, such as cattle, horses and sheep, and as I have seen and studied some few cases since becoming a physician, it places me in a position to know of it in many respects.

I have read many articles published years ago on the subject which advanced theories from all points possible, yet to me they seemed to have little or no foundation, due possibly to lack of investigation.

This disorder has had many names suggested by common symptoms or from some theory as to the etiology, yet owing to the fact that a high percentage of the cases were due to the use of milk, no better term could be applied than "milk sickness," while in stock the predominant symptoms being trembling, "trembles" may be a better name.

Many writers, but no authority, have tried to describe a geographical limitation of the area chiefly affected, such descriptions failing from the fact that so little was known of its origin, each writer or investigator forgetting to note the environment of the outbreak and failing to see the relation between the thickly wooded pastures and virgin soil in its primitive state and the wild vegetation thereon.

Osler said: "Little is known of the disease from the fact that about the time that scientists began to study it it ceased to exist." He should

*Read at the sixty-fourth annual meeting of the Illinois State Medical Society, Decatur, May 21, 1914.

say now that clearing and cultivation of land have caused extermination to a limited number of cases, yet so long as North America has uncultivated timber land that has climatic conditions favorable to the growth of a certain plant that I will describe later, milk sickness and trembles will exist in proportion, and consequently the medical profession should be kept abreast with the times by those in a position to enlighten them, for at any time they may come in contact with a case far removed from the site of origin or out of season when the plant is unobtainable, being transferred by dried beef, butter or cheese.

The Plant. *Eupatorium ageratoides* (white sanicle) is usually displayed in the rich soil of the thickly shaded oak ridge near a small stream that is accompanied by a sandy bottom. The more shade the thicker it grows, its season being from July to November, inclusive, blooming in September, a white flower of the corymb type, being a cluster of flowers, each on its own foot stalk and arising from a common axis, each having a fringy bloom. The stalk is from one to four feet high, with a square stem, opposite petioled leaves broadly oval at the base, taper pointed, coarsely toothed, three nerved and veiny, thin and easily skeletonized by insects that enjoy the leaves of this clan of plants. They grow in pairs from alternate sides of the stalk, so that each pair of leaves are at right angles with the pair below or above it. Just before and during the time of blooming the honey and other small bees, wasps, etc., cut many holes in the leaves, using the parts for honey combs. The blue butterflies frequent the bloom, gather nectar and transfer the pollen. The roots are many, all about the same size, varying from four to twelve inches in length, are pearly white, spread out, and grow only about three inches deep, wilt and turn brown almost immediately after being pulled, then become wiry-like. The plant thrives well in dry weather, the leaves and stem look very green when neighboring plants are parched, and if cut the stems may be kept growing in a basin of water from six to eight weeks, yet no roots on the stems, while the part in the water turns black.

Pasture and Live Stock. During the dry season, when all grass is gone, heat intense and

flies numerous, the herbivorous animals are driven to the thickly shaded places to knock off the flies with the thick brush and weeds. So rather than to venture out into the open again they browse wild plant life that is more green and juicy, and if the *Eupatorium Ageratoides* be present it is found that it is more bitten than any other foliage. After noting this fact and losing many cattle, sheep and horses, I procured three head (two young cattle and one sheep) that were healthy, proven so by chasing them, also they had not been in wild pasture, fenced them in a barren lot and compelled them to eat the plant, cut fresh at each feeding. Within three days all were dead, symptoms and signs being identical with those that had died previously.

Symptoms and Signs of Trembles in Animals. This I cannot take up in detail owing to lack of time, but because of the similar symptoms to the disease in man it is necessary to give a gist of the predominant symptoms and physical signs I noted in cattle, horses, mules, sheep, dogs, buzzards and hogs.

Cattle. The first manifestations noted are listlessness, indifference to food, yet will try to drink, and disinclined to move about, holds head low and watches the ground as it steps (as man with ataxic gait). Eyes have a glaring, protruding appearance; is unable to walk straight and fails to keep pace with its fellows, stops to rest, attempts to evacuate bowels, muscles of shoulder quiver, and front legs seem weak while the hind legs are stiff, is unable to walk across old corn rows or uneven ground, falls and lies panting, is unable to rise, if tame will allow help to get up, while if wild they will try to fight and die from the exhaustion. These first characteristic signs pass into the more severe symptoms of the second stage of great weakness and clonic contractions. If able to get up the front legs seem too weak to hold its weight and the extensor muscles paralyzed, causing the flexed position till death occurs, while the hind legs remain extended, yet many clonic contractions of the muscles are noted. Its neck is usually twisted to one side, some of the muscles hard and stiff, later in the stage the head is extended; the eyes are red and protruding upward accompanied by a gummy yellow discharge. The breath has an acetone odor in all cases. Sometimes if the animal be wild or is disturbed it may have a thin muco-bloody passage of the bowels which has a similar odor as the breath; the majority die, never having had an evacuation of the bowels. The milk cow is less likely to die as she seems to eliminate the toxic product through the milk yet she may have all the first signs noted in steers and if caused to go dry she will die also. The milk of the affected cow has neither unusual odor nor taste. The cow may be driven quite a little more than other animals and show scarcely any signs of exertion, yet her milk may be very toxic and may

cause the death of several using her milk before she is suspected as being the contributing cause, but after close observation and severe exercise she will give off the same fetid odor as other animals except the hog and dog which give no odor, this being attributed to the lack of sweat glands. The pulse is very irregular, temperature always from one to two degrees lower than normal, gastro-intestinal tract distended with gas, a slight groaning is heard, Cheyne-Stokes rhythm of breathing is noted. During this stage signs of pain are manifested and a continuous movement of one of the front limbs is noted while in the semi-conscious condition, finally in the last five to six hours all consciousness is lost and death seems painless.

Horses. Losing five head of various ages in the late summer months during a period of three years, it naturally caused me to spend some time on the study. A colt was the first victim and had died with similar symptoms as described in cattle, its mother's milk being the cause, yet she did not manifest any symptoms of sickness until hitched to a load (about the time the milk was failing) when she stopped, failed to respond to the whip, fell and never got up, died in nine hours. Before she fell trembled all over and after falling had clonic muscular contractions of the front legs, digging grooves in the ground with the movements, held her head to one side, at times groaned, then would stretch out flat and strike with front feet, these symptoms finally abating and was apparently unconscious until death, eyes, respiration, odor and temperature similar to that just described in cattle. Other horses that died were affected similarly to steers, beginning by the slow drooping, wavering gait, finally got down and were unable to rise, none of them living over seven days.

Mules did not seem much affected, as none died and only two showed marked signs, one a nursing mule was slightly affected at the same time with its mother, but neither died. Both had the first stage symptoms. The other mule showed "trembles" when hitched to a plow, but after a few days' rest seemed to recover. Its predominant symptoms being slow movements, droopy, trembling and failing to eat. I have heard of several sick mules but no fatalities, neither have writers mentioned any deaths. I attribute this partly to the nature of the mule in regard to eating. They are more particular about what they eat and never overeat. And the *Eupatorium Ageratoides* when bitten or crushed gives off a peculiar disagreeable plant life odor that seems to discourage the mule from eating it. The sheep is guarded against eating this plant from its odor, while horses and cattle seem to pay little or no attention to plant life odors and will eat anything green.

Sheep. I only lost four out of a herd of seventy, aside from those killed by the feeding experiments, although many seemed as farmers speak of it "off their feed." Those that died had similar symptoms to the cattle, the predominant symptom being to lie flat and dig grooves in the ground with their feet.

Buzzards partook of the carcasses of both cattle

and horses. Some of them died, some were slow to fly when I approached, but owing to their nature I had no opportunity to study their symptoms.

Dogs. Our dog and two tramp dogs which had eaten the flesh from the carcasses of the horses died within three days. The two tramp dogs were never able to get off the farm, vomiting and weakness being their worst symptoms.

Hogs. One sow which had eaten the flesh of one of the cows that had died did not seem affected but four of her seven pigs were sick, being bloated and breathing rapidly when lying stretched out. They were unable to suck or follow their mother for three or four days, but finally recovered.

Cases. After the man had died of milksickness, near West Newall, Ill., last August, the family quit using the milk and fed it to the pigs two and one-half months old; three were made sick and would not drink the milk. All recovered. Their symptoms being similar to other pigs mentioned.

In the cases near Jamesburg, Ill., last October, I chased the family milk cow until she showed marked symptoms of trembles, her milk was fed the cats and all were made sick; also a sow was fed her milk and the seven nursing pigs all died. Symptoms of trembles as described were noted.

In the Flora, Ill., cases last August, after close observation, the family milk cow appeared all right, which is often the case, especially seven weeks after the first case was diagnosed, yet the mules were still in the same pasture as the cow had been and were reported sick when hitched up to plow only a few days before I saw the third case.

The cases near Rinard, Ill., my father being the first, began with vomiting and died within five and one-half days. My mother and two sisters were seriously sick at the time of his death, but all three recovered slowly. One sister had a second attack two years later and again recovered, yet at this time the hired man died in three days from the onset of the vomiting. I was the next patient and began suddenly with vomiting, having no ill feeling the day before; vomited three days and nights continuously, then began to improve slowly, yet after my apparent recovery I noted for many months any unusual exertion brought about weakness, shortness of breath and trembling, also overeating would cause me to vomit.

A neighbor whose farm adjoined ours had three sons sick with the same malady, two of whom died.

Of the seventeen cases mentioned at the four locations nine were fatal and the origin of all could be traced to the milk cows and in each of the six pastures mentioned the *Eupatorium Ageratoides* was present in large quantities and had been bitten more than any other plants, and in fact were the greenest plants to be found in the pastures.

Immunity. Nothing is immune, but the herbivorous animals seem more susceptible and more fatalities are reported than in the carnivorous, and neither acquire immunity by an attack.

Also man may have repeated attacks, or relapses due to the cumulative properties of the intoxicant.

Postmortem on two horses and one cow. All showed a capillary injection of the lining of the gastro-intestinal tract, the intestines being loaded with food they had eaten before showing signs of illness, also bloody mucus was present. Other organs appeared normal, except the liver was congested and enlarged.

THE DISEASE IN MAN.

Predisposing Factors. Judging from personal experiments, much clinical study and a preponderance of evidence obtained from other investigators, I believe that this disease is an intoxication, rather than an infection, as is believed by some who have thus far failed to prove that they have found positive bacilli, and also those that have advocated the mineral (alkali) theory have more than failed.

Water need not be considered as a factor, even though some writers mention a dry season following an overflow, or wet season, others speak of marshy places, sloughs, etc., but this theory will not hold out, as I have visited many pastures containing the plant that had neither stream nor marshy places and were too high for an overflow, the stock drinking well water. Yet they were victims of trembles. Then, too, other stock drinking the same water, but running in another field, never showed the least signs of illness.

In one family five of the seven were sick. All drank the same water, but the two that escaped never used milk or butter, while the five did. One died; also the suckling calf of one of the milk cows died.

I have made many microscopic examinations of cultures, blood and urine, in the recent cases and was unable to find present the bacilli described by Prof. E. O. Jordan in his writings in 1909 on Milksickness, and he is the only investigator or writer, out of 167 since 1810, that has attempted to prove the etiology by an isolated specific micro-organism. Then owing to the fact that the bacillus in question belongs to a group which seems widely distributed and has not been proven to be endowed with pathogenic qualities, he has about abandoned the germ

theory of etiology, and nothing has been written on this subject since his writing in 1909.

Herbivorous animals being first affected and especially the cow, carnivorous animals then develop the malady when fed on the carcasses. The disease is in a way self propagating and I have noted under some conditions may be passed on from one animal to another by being fed on the milk or meat of its predecessor. This may be explained from the fact that the fatal case had a maximum dose of the intoxicant and the tissues have a complete or near saturation, thereby transmitting to the second or third animal by his eating the meat.

Season.—Beginning in August of the extreme dry years and continuing to the latter part of October, cases are more numerous and this time is when the plant mentioned is in its thriving condition, also it is a plant that dry seasons seem kindly to its growth, yet it must grow in the shade. Many cases have been reported out of season, and where neither the plant grew nor trembles in livestock existed. These can be accounted for by the use of cheese, cured or dried beef and possibly honey from bee trees.

Now with this in mind I will take up the disease in man as an intoxication from the alkaloid or active principle of *Eupatorium Ageratoides*, being transferred to man through the medium of milk, butter, cheese, beef and pork, and occurring in frequency in about the order named.

Intoxication Period.—This is usually about two to five days and judging from the physiological action of the poison it seems to have cumulative properties and then begins to act suddenly. In many cases no premonitory symptoms are noticed except a few hours of weakness.

Acute Symptoms and Physical Signs.—These begin by anorexia, languor and fatigue, later nausea and vomiting. The patient is unable to take food or water owing to the pernicious vomiting which may be continuous from one to two or three days when complete exhaustion is followed by restlessness and mental dullness. This is followed by semi- or complete unconsciousness, obstinate constipation, urine scant with pale color, pain in the abdomen as the case progresses and at times referred to the calves of the legs followed by stiffness, hiccough, dysphagia. Extreme thirst is the rule and the patient's breath,

has a fetid odor with a similarity to acetone or chloroform which is the most characteristic diagnostic symptom of the malady. When the patient is directed to protrude his tongue a decided tremor is noted, the tongue is red, unusually large and later becomes sore and parched into fissures; pupils react sluggish, ocular conjunctiva reddened, eyes rolled upward in the semi-conscious state and a yellow gummy discharge at each canthus; abdomen scaphoid and later tympanites occur; convulsive seizures are occasionally observed; patient usually lies on the back with the head turned sideways; legs drawn up with the knees spread apart, tendon reflexes sluggish; skin cold and clammy; pulse irregular, varying from 70 to 120; temperature subnormal, rarely exceeding 99°; blood pressure about 95 and falling as low as 67; respiration irregular and of the Cheyne-Stokes character.

Sub-Acute or Chronic Signs and Symptoms.—This form is about the same as the acute, produced by the same cause but differs in degree. The patient is languid, only vomiting by spells, at times seems a little better than others, yet unable to exert body or mind; appetite varies as to food or thirst, may eat, but the eating causing a relapse; bowels are sluggish; palpitation of the heart at times; stiffness of the legs with cramps in the calf muscles; liver enlarged; skin wrinkled and yellow; sweat and breath having the acetone odor; tongue swollen, clean and red; no reflexes; tender over jejunum and ileum, gas gurgling in that region; respiration irregular; marked emaciation; eyes half open and conjunctiva yellow. May vomit blood or pass bloody stools; blood pressure as low as 70 (one case the blood pressure was 67 and when blood pressure runs that low the case is fatal, and I might mention here the fact that in these cases the blood pressure is the lowest on record, even 5 to 7 m.m. below typhoid cases, which up to this time has held the lowest records.) Low blood pressure may be explained as due to the dilation of the gastro-intestinal vessels, also the dilation of the central veins of the liver, adding their effect to the cutaneous vaso dilation. Temperature usually subnormal, but at times may reach 100°, or possibly higher just before death due to some complication. This stage may exist for months or may be transformed at any time into the acute by over-exertion or over-

eating. If convalescent, weakness and trembling is noted and if patient attempts to run the adductor muscles relax and at each step the feet get farther apart until he falls.

Diagnosis. 1. *Differential.*—The vomiting is similar to pernicious vomiting in pregnancy in the subacute stage, but this mistake can be avoided by careful history. Other symptoms are not characteristic of any other malady and by careful examination no excuse can be offered for a mistaken diagnosis. Note.—Vomiting of pregnancy is often accompanied by acetone and diacetic acid in the urine.

2. *Clinical.*—The appearance of the tongue, odor of the breath, vomiting and subnormal temperature.

3. *Laboratory.*—This should be closely noted, yet little is gained by the effort only to eliminate suspicious etiological conditions. This I had in mind and made repeated examinations of the milk, both chemical and microscopical, but in all cases no trace of the bacilli lactimorbi as described by one writer were found.

Feces.—Acetone odor and acid reaction.

Urine.—Pale, scant, acid reaction, Sp. Gr. 1020 to 1030, traces of acetone, also albumin. The fact that some had no albumin might be attributed to the free use of sodium chlorid in the treatment, as its use will diminish the quantity of albumin as in acute nephritis.

Vomit.—Mucoid tenacious material with acetone odor, acid reaction and later may contain blood.

Blood Examination.—White cells from 8,500 to 9,400. No leucocytosis.

Relative count made the 9th day of the illness:

Lymphocytes, 11.8%.

Small Lymphocytes, 4.95%.

Large Lymphocytes, 5.2%.

B. P. cell, 1.65%.

Polynuclear, neutrophiles, 87%.

Laboratory tests and animal experiments will be given in the complete article with case reports.

Pathology.—It is a malady showing little or no pathology except the mucous membrane of the stomach and intestines show injection of the blood vessels, and the organs themselves contracted; Peyer's glands show unusual redness. In the subacute or chronic cases the liver is enlarged, presenting a high degree of fatty degeneration,

the central veins dilated and filled with blood and bile ducts compressed.

Prognosis.—The outlook is very grave in both the acute and subacute cases. The acute usually die between the second and ninth day. If there is any predisposition to tuberculosis the time is never better for the work of the tubercle bacilli as in the subacute cases. If not tuberculous and the patient is sick many weeks or months, the tendency is to become permanently demented or die from cardiac failure which gradually develops.

Prophylaxis.—If possible clear the ground and plow it to destroy the plant, or burn over the woods after the leaves have fallen. Avoid the use of thickly wooded pastures during the dry seasons. In case of sick cattle avoid the use of milk, and in case any stock are lost, burn them.

Under this head I want to mention the outbreak in Newcastle, near London, England, January 24, 1914, just to illustrate the serious condition which may follow the contamination of so important an article of food as milk. In this outbreak, which was not milksickness, 523 people were affected, some becoming seriously ill and the cause traced to one cow's milk. The farmer thought the cow had only an ordinary bad cold.

Treatment.—Owing to the active principle of the plant having a marked affinity for alcohol, nothing is better than the use of alcohol as an antidote to the degree that its physiological action is noted (intoxication). Avoid purgation. Use sodium chlorid and sodium carbonate, equal parts, 15 grams to the pint per rectum, every two hours. In the subacute cases castor oil may be used in addition to the above and one of the first foods successfully used is salt cured meats with fruit wines.

Conclusion.—To sum up the abundance of evidence is to me quite positive proof that milksickness is an intoxication from the active principle of the *Eupatorium Ageratoides*. It now becomes necessary for those who call it an infection to explain the subnormal temperature, absence of leucocytosis even at the tenth day of the illness, absence of local or general infection in man from doing post-mortems. Owing to the fact that nothing has been written on this subject

since 1909 and that by a laboratory man, I do not consider of much value simply laboratory deductions without clinical knowledge and continuous personal observation of the disease.

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DISCUSSION.

Dr. A. A. Goldsmith, Chicago: I have had no experience clinically with the disease under discussion. However, seven or eight years ago I had the opportunity of examining specimens of the parenchymatous organs from two children, brother and sister, who had died in New Mexico after a few days' illness from milk sickness. Microscopically there was an extreme grade of necrosis found in the liver and kidney. I am rather surprised, therefore, not to hear more about this in the present discussion of the subject, as it was my impression that this is a common finding in this disease. I would like to enquire as to whether the plant grows in a more scattered way than I was aware of. I was always led to believe that the disease in America occurred chiefly in two locations: Illinois and New Mexico.

IMPERFORATE ANUS.*

M. H. SMITH, M. D.,

SHERRARD, ILL.

The subject of Imperforate Anus usually considered to be of surgical or of anatomic interest, only, is rapidly becoming of more interest to the general practitioner, as it is he who first discovers the anomaly and is expected, not only to be perfectly familiar with the statistics as regards its rarity, but also, what chance has the child to live and with how much comfort after operation. These questions will be immediately asked you by the anxious parents and they have a perfect right to know.

Originally the intestine consists of an inflection of the hypoblast which extends from one end of the embryo to the other, and is located just below the primitive vertebral column. At either extremity it forms a closed tube which is divided into three parts—a front part, or fore-gut; a posterior part, or hind-gut; and a central part, or mid-gut.

*Read at the sixty-fourth annual meeting of the Illinois State Medical Society, Decatur, May 21, 1914.

The ends of the fore-gut and the hind-gut do not communicate with the surface of the body. The buccal and anal orifices are later formed by involutions of the epiblast, which subsequently form communications with the gut. The anus is formed by an inflection of the epiblast, which extends inward to a slight extent and approaches the termination of the hind-gut and finally communicates with it by a solution of continuity in the septum between the two. The persistence of the fetal septum at the anal orifice constitutes imperforate anus.

Just what it is that takes place to cause arrested development in the alimentary canal in the fetus and which causes such a terrible and distressing malformation in the new-born child is not clearly known. The thread-worm and time-honored theory that syphilis is the cause has been disputed on good ground, since it is proven beyond question that the anomaly is of comparatively frequent occurrence in the lower animals. Seldom if ever in the negro.

In discussing this subject, Ballantyne and others make a sharp distinction between fetal and embryonic pathology.

During the first eight to twelve weeks, which is considered to be the period of embryonic life, the alimentary canal has assumed the form it takes at birth and it is at this period, that of organogenesis, that arrested development takes place and it is not thought to be due to the usual pathological alterations, but to perversion of development due to pathological conditions elsewhere.

There is a close relationship between deformity and disease, and while we are deeply ignorant as to what produces this and that deformity, we do know that abnormal development of the amnion, with the formation of adhesions, in the embryo would be a very plausible reason for the anomaly imperforate anus.

Again, the conditions which might take place, even after the rectum is perfectly formed, could cause certain deformities and in this regard fetal peritonitis with resulting adhesions and constricting bands should be taken into consideration.

Classification. Under the head of classification, I will take up:

1. *Narrowing of the Rectum or Anus Without Complete Occlusion.* The stricture may be of variable degree from one of very slight narrowing of the lumen of the bowel, causing only slight symptoms, to one allowing only a slight amount of meconium to pass and causing very severe symptoms, such as distension of the abdomen and vomiting. These strictures are quite characteristic and generally linear, resembling a deformity produced by tying a band around the bowel and are also usually located low down, making diagnosis easy. The anus may also be narrowed in much the same manner as the rectum.

2. *Membranous Closure.* This is one of the most simple and most rare forms of imperforate anus. The membrane may be composed of mucous membrane above and skin below, in which case there may be a slight depression to correspond with an anal opening or the median raphe may extend over the spot in an unbroken line. There may be a double septum, in which case always the uppermost one is composed of mucous membrane above and below.

There may be a rudimentary sphincter or there may be no trace of an anus, the proctodeum being quite undeveloped.

3. *Absence of a Part or All of the Rectum.* The rectum may be entirely absent, or it may end in a blind pouch, which may hang loose in the free peritoneal cavity, or it may be found at some distance from the perineum, where it may be firmly imbedded in the tissue surrounding some organ, such as the prostate or the kidney, or it may be found at a variable distance in the perineum firmly imbedded in the tissue of that body. The anal site may be smooth or there may be a slight depression to correspond with a normal anus, or the anus may be perfectly formed and end in a cul-de-sac.

4. *Imperforate Anal Canal with Vulvar Outlet.* According to Ball,¹ the most common form met with, most of the vaginal forms reported are of this type. In many such malformations the abnormal anus may functionate efficiently.

5. *Imperforate Anal Canal with Perineal, Sacral or Suburethral Outlet.* In these cases

there may be exactly the opposite condition to that of absence of the rectum, inasmuch as the rectum may be elongated and emerge at any point along the perineum, external and internal genital folds, margin of the vulva, underneath the scrotum or penis. In these cases the opening is not sufficient to allow complete fecal evacuation.

The rectum may open into the bladder, vagina or uterus.

In addition to the above classification, there is often associated with these anomalies other deformities, such as horseshoe kidney, double kidney pelves, double ureter and deformity of the bony pelvis.

Congenital malformations of the rectum and anus are rare. Concerning this Leichtenstern² says: "Congenital occlusion of the rectum, in which there is absolutely no anus formation, has been observed but three times in 66,654 new-born children." "Congenital artesia of the colon or small intestine is still more infrequent. Of 375 collected cases, 10 were of the colon and 74 of the small bowel." The atresias of the colon are almost exclusively situated in the iliac flexure; those of the small intestine at the ileo-cacal valve and duodenum."

Collins, in the Maternity Hospital, Dublin, saw only one case of imperforate anus in 16,000 births.

County of Havre, France, observed three cases in 35,000 births.

Zobie, of the Vienna Maternity Hospital, 2 cases in 50,000 births.

The Paris Maternity Hospital records show 5 cases in 20,600 births.

Surgical treatment for the relief of the anomaly has been practiced for very long, even from ancient times. This treatment was usually puncture or simple incision. In 1835 Annussat employed the first true proctoplasty. He carefully resected the perineum; the rectal ampulla was carefully detached and drawn down to the perineal incision and the mucosa sutured to the skin margin.

Littre instituted the method of iliac anus and Collison that of reaching the intestine by way

of the lumbar route, and various other methods have been employed by other operators.

The ordinary simple incision, while it may allow the escape of meconium and prolong life, does not result in even a useful anus for any length of time. This operation may be modified by bringing the rectum down, after carefully dissecting it loose, and stitching to the skin, and to facilitate this, where the rectum is too short the coccyx may be removed and the bowel take its place.

In event of failure to establish a new anus in the perineum, colotomy should be undertaken at once. I quite agree with Norbury,³ who thinks that the incision for colotomy should be made in the median or paramedian line, for one cannot be sure how much of the bowel may be wanting.

In regard to a secondary operation in the perineum after colotomy, most operators report a large percentage of failures, but at the same time in cases where the patient is one of good vitality and has attained not less than the age of six months, and where the artificial anus in the groin is objected to, and where the conditions are otherwise favorable, this operation should be undertaken. The operator has the advantage of the opening above, thereby enabling him to pass a sound as a guide down into the pouch at its most dependent portion, when it is comparatively easy to find the bowel and after a time the opening in the groin can be closed.

Bodenhamer⁴ made a very complete examination of a large number of cases of imperforate anus and collected data from authentic sources referring to 465 cases. His tables are verified up to the date of his work. He also made a very elaborate differential classification of the various types.

His statistics are: Number of cases examined from all sources, 465; males, 230; females, 130; sex not stated, 102; number of cases treated, 345; number of cases successfully treated, 160; number of cases unsuccessfully treated, 185; number of cases not treated, 120.

Curling collected 100 cases, 68 of which were males, 32 females.

Bonissou⁵ collected 100 cases, 47 of which were males, 53 females.

Bodenhamer states that he found 51 cases where Littre's operation had been done. Twenty-one of these were successful, 28 unsuccessful, 2 unknown. Lumbar colotomy was performed in 16 cases. Successful, 6; unsuccessful, 10.

The analysis of cases by Cripps⁶ and Ashurst⁷ shows that the mortality for colotomy is 65 per cent and for perineal proctoplasty 22 per cent.

Hardouin⁸ made an important investigation into the subject and he collected altogether reliable particulars of 223 cases. They are as follows: Treated by simple incision of puncture, 53 cases; treated by Amussat's method (proctoplasty), 73 cases; treated by other methods (perineal way), 8 cases; treated by Littre's methods (illiac anus), 63 cases; treated by Collisen's methods (lumbar method), 10 cases; treated by combined methods, 16 cases; total, 223.

Of these 124 died within 1 month (99 in 1 week); 15 died within 1 year; 51 results not determined (5 believed to be good, rest lost to view); 30 have lived in good condition more than 1 year; 3 still living at time of report (less than 1 year); total 223.

Of the 30 surviving more than 1 year 14 are from 1 to 10 years; 6 more than 40 years.

From these results it is seen that 55 per cent passed the first week after operation; 44 per cent passed the first month after operation; 23 per cent passed out of view; 13 per cent passed the first year; 6 per cent passed more than 20 years.

The operative procedures of Littre have given better end results than the others, but the dangers in it and the other methods are stricture, incontinence and prolapse.

In Bouisson's statistics there were 21 illiac operations, with 7 recoveries, 8 deaths and 6 unknown. Recoveries ranged from 17 to 47 years.

Anders⁹ reported 100 cases: Proctoplasties, 44; recovery, 31; death, 13. Colotomies, 21; recovery, 10; deaths, 11. Not reported, 3; recovery, 2; deaths, 1. Simple incision, 32; recovery, 21; deaths, 11.

Two very unusual cases have been recently reported. Pfeiffer¹⁰ reports a case of anus in the vulvar vestibule. This is one of the rare forms, as there appears to be only 34 similar cases known, and only 11 of these women bore children. The muscles of the vestibular region were

strong and insured continence. No operation was undertaken and the woman remained quite comfortable up to the time of the report.

Smiley¹¹ records the case of a woman, aged 27, who had an imperforate anus. The rectum opened into the vagina about 2 inches from the vaginal orifice, there being an elliptical sphincter which was of sufficient strength to give control of the bowel. This woman was delivered of a 9-pound child and after delivery made an uneventful recovery.

Mueller¹² had two cases in which perineal exploration failed to locate the bowel. In one case the illiac sigmoid was found at the crest of the first sacral vertebra in a cul-de-sac. In the second case the sigmoid was found to terminate in the cecum at the superior portion of the lower pelvis. In one of these cases there were other congenital anomalies, a fact which is very common in all such cases, the child having a horse-shoe kidney with two kidney pelves and two ureters.

Mueller advises laparotomy for all cases not discovered by perineal dissection; also he says the rectal ampulla should be sought in the sacral cavity.

Clogg¹³ reports a case in which, owing to the entire absence of anus and anal canal, and from want of any indications as to the position of the rectum, immediate left illiac colostomy was performed without any previous attempt by way of the perineum. At the age of 6 months perineal exploration was made and the rectal ampulla was found and the bowel terminated opposite the base of the prostate, to which it was firmly adherent. The bowel was made freely mobile, the peritoneum being freely opened to accomplish this. The rectum was opened and its cut edges sutured to the skin of the perineum. The colostomy was closed two months later.

Clogg lays stress on the following points for all such cases. 1. The advantage of immediate primary colostomy over perineal dissection when the bowel terminates at some distance from the perineum. 2. Importance of avoiding tension by freely mobilizing the bowel before suturing it to the perineum. 3. The loss of sphincteric control, owing to the absence of proctodeum and consequent non-development of the sphincter ani.

Chenhall¹⁴ reports a woman, aged 36, operated upon in infancy for imperforate anus (the description of the operation not given), never had control of her bowels and of recent years was compelled to wear a rubber protector over the anus. For some time life had become almost unbearable in the erect position owing to prolapse of the bowel. Chenhall operated on her by suspending the sigmoid to the anterior abdominal wall. Ten days later he carefully divided the circumference of the mucous membrane at the anal margin. This he stripped up a short distance, opened the peritoneum on the left side freely and immediately pushed back the prolapsed bowel. This procedure was repeated on the right side. The loose part of the bowel was then drawn down and the peritoneum closed, its attachment being made to a point much higher on the bowel. When this had been accomplished, the whole of the bowel below the anus was amputated, the proximal end being stitched to the anal margin. The result gave perfect satisfaction.

I wish to report two cases which I have encountered in my own practice.

The first case is one of the membranous, which is one of the most rare but simple forms. Child born without anal opening but with the symptom of bulging over the point which is almost positive proof that the bowel is superficially located which proved to be the case on simple incision. In this case I made the incision without an anesthetic.

The following day the child was anesthetized and the cut edges of the rectum brought down and stitched to the skin. In this case there was a weak sphincter and the child at four years of age has no difficulty save at times when the contents of the bowel are of liquid form. There has been no prolapse. This case is of interest only in regard to its rarity.

The second case is that of a male child born Feb. 14, 1914. Weight at birth 9 pounds. Child born with imperforate anus and a fistulous communication between the rectum and bladder, the child passing meconium by way of the urethra. At the anal site there was a slight depression but no bulging on straining. Twelve hours after the child's birth I undertook an operation by way of the perineum in hope that I might locate the rectal ampulla but after diligent search and being handicapped by poor light and no assistance, the case being in the country, I was unsuccessful and ordered the child sent to the St. Anthony Hospital, Rock Island, where Dr. E. M. Sala resumed the perineal operation and was rewarded by finding the bowel which was located in a

small opening which would correspond to the pelvic outlet to which it was firmly adherent. This opening was explored with the finger and found to be decidedly narrowed by what seemed to be a deformity of the bony pelvis. The bowel, after a delicate dissection, was sutured to the skin of the perineal incision, the wound cleansed, a tube inserted and packed around with sterile oakum.

Baby did well for three weeks when a complete stricture occurred at the artificial anus. He was again anesthetized and an effort made to enlarge the lumen of the opening through the bony pelvis whereby we would be enabled to do a more complete dissection of the rectal ampulla in order to bring the rectum down without tension being made which was the cause of failure of the first operation, in this we were quite successful, and in making the incision in the perineum which was made up and down and the two points of incision being brought together again modified our first operation and increased the lumen of the opening.

Tube was inserted and as in the first operation firmly stitched to the skin, but in neither instance did it remain to exceed 24 hours.

Child still has to have the opening dilated. Ether was used for both operations.

This case is of interest on account of the communication between the rectum and bladder, also, on account of the deformity of the bony pelvis.

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FURTHER ADVANCEMENT IN OUR STUDIES OF SYPHILIS.*

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Although a wonderful advancement has been made in the treatment of syphilis, comparatively few realize the role that the early diagnosis plays in the cure of the patient.

Many staining methods for the detection of the spirochete have been recommended as short

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and reliable, but none has as many advantages as the dark field condensor, as here the demonstration of the living spirochete is characteristic and distinct. From an experience dating from the year 1908, consisting of many hundreds of examinations, the writer considers that the one and only method for use is the dark field condensor. The advantages of this method depend upon the illumination which is greatly facilitated by the new Nernst lamp. This style of lamp has the advantage over the arc light, in that it gives a continuous strong light with no breaking or closing of the circuit or burning out of carbons.

Noguchi's method of snipping out a small piece of the lesion and macerating it with salt solution in a mortar offers an excellent way of obtaining the organism in large quantities, for in this manner they are expressed from the lesion and appear abundantly.

The universal procedure of making a smear from a lesion the same as one would do in making an ordinary pus smear, should be emphatically condemned as it is absolutely impossible for the laboratory in this way to do itself justice.

There are two things during the presence of the primary lesion that we wish to know.

These are—

1. The result of the Wassermann reaction on the blood as a guide to future treatment.
2. The result of the spinal fluid examination as a control on future complications of the nervous system.

1. *Wassermann Reaction On the Blood.* For example—a patient presents himself for examination. Diagnosis is made by finding the spirochetes in the primary lesion. Assume the Wassermann examination is negative. This shows that the system is not involved to any great extent and the possibilities of a speedy cure are good. On the other hand, take a similar case in which the diagnosis is made by finding the spirochetes in the primary lesion, but with the Wasserman examination positive. This shows a considerable systemic invasion and is not so favorable for a speedy cure.

It is not a generally recognized fact that the consumption of even small quantities of alcohol, if taken from one to seven days before the Wassermann is made, tends to influence the test by producing a false negative reaction. Attention

was first called to this by Craig and Nichols¹ of the United States Army, and since then it has been verified by serologists all over the country.

Where a doubtful or distinct clinical history is given, a negative Wassermann on the blood should not be taken as conclusive evidence that syphilis does not exist, but to this should be added a complete spinal fluid examination. Should this likewise prove negative, a provocative salvarsan should be given and Wassermann examinations on the blood should be made 24 hours, 48 hours, 7 days, and 14 days afterwards.

Should all these show negative, the patient may be considered as not having the infection.

2. *Spinal Fluid Examination.* During the past two years, numerous observers both in this country and abroad have called attention to the fact that the nervous system is already involved in early syphilis, a thing almost undreamed of before this time. This involvement seems to be due to a selective type of spirochete and it becomes our duty to puncture the spinal canal if we wish to control the situation here as well as in the blood stream.

This spinal fluid examination consists of the following:

1. Wassermann reaction.
2. Cell count.
3. Globulin reaction { a. Noguehi.
b. Nonne—Apelt.
4. Pressure.

Technique. Lumbar puncture is always performed best with the patient lying on his side. Inasmuch as 5 c.c. of fluid are essential for a proper examination it is advisable to perform this puncture only in a hospital. During the withdrawal of the fluid, the patient's head should be absolutely flat (without pillow) and continued so for twenty-four hours with the addition of the elevation of the foot of the bed after the patient has been removed from the operating room.

1. Wassermann reaction. Of all the tests, the Wassermann reaction on the spinal fluid is the most reliable. Frequently, however, an error has been made in taking too small a quantity of this fluid: at least seven times the quantity that is required for the blood Wassermann is absolutely essential for accurate results.

2. Cell count. The following standard of Dreyfus² based on 750 punctures is recommended

by Ellis & Swift of the Rockefeller Hospital:

1 to 5 cells per cmm.—Normal.

6 to 9 cells per cmm.—Doubtful, border cases.

10 to 20 cells per cmm.—Slight lymphocytosis.

21 to 50 cells per cmm.—Moderate.

Over 50 cells per cmm.—Marked.

Technique of Leucocyte Count of Spinal Fluid.

The apparatus employed is the Turek. The spinal fluid to be tested is thoroughly shaken. Draw up in the white cell counting pipette 10 per cent. acetic acid to the mark 1, then the spinal fluid to the mark 11. This gives an employment of 9 parts of spinal fluid in 10 parts of the mixture or 9/10 of the mixture is spinal fluid. Blow out the first few drops of the solution from the pipette and then place on the chamber just sufficient fluid so that with pressure of the cover glass Newton's rings appear at the four corners. Count the cells in the whole ruled area. Since the volume of each large square of the Turek ruling is $1/250$ cmm. and as there are 144 large squares in the ruled area, the volume of spinal fluid in the count is $144/250$ cmm. The number of cells in this volume represents the cells in 9/10 spinal mixture, therefore in 1 cmm. volume of straight spinal fluid are multiplied the cells counted by the inverted fractions $250/144 \times 10/9$, giving a constant multiplying fraction of approximately 50/27.

3. Globulin. This may be made after the method of Noguchi or the method of Nonne-Apelt.

a. Technique of Noguchi Butyric Acid Test. To 0.2 cc. spinal fluid add 0.5 cc. of 10 per cent. butyric acid in physiological salt. Boil carefully over a small flame for a minute and add quickly 0.1 cc. of normal sodium hydrate and boil again for a few seconds. In the presence of excess globulin, a precipitate forms of varying intensity, depending on amount of globulin present. A cloud may appear in normal fluid.

b. Technique of the Ross Jones Modification of the Nonne Test. Float on top of about $1/2$ —1 cc. of supersaturated (by heat) ammonium sulphate solution, about $1/2$ the quantity spinal fluid. In the presence of excess globulin a white ring forms. In case of small quantity of globulin, if the ring is either absent or indistinct, shaking

the tube will cause the clouding to become prominent.

4. Pressure. Pressure is estimated by allowing the fluid to run into a graduated manometer tube with a bore 3 millimeters in diameter, and reading the height to which the fluid rises. This figure is only relative.

Necessity for Spinal Fluid Examination in Syphilis. Ever since the discovery by Noguchi³ that the cerebrospinal fluid in paresis, cerebrospinal syphilis and tabes contains live active spirochetes that are capable of being transmitted to animals a new light has been thrown upon subarachnoid involvement. How this involvement takes place is not exactly known, whether the spirochetes are capable of passing through the choroid plexus, or advancing along the lymphatics that accompany the nerves, future investigation will have to determine.

There is little doubt, as Mott⁴ has already shown that there is a selective type of organism that has a predilection for the nervous system. The all absorbing question is, how are we going to get rid of the infection, once it has anchored itself within the subarachnoid space?

Flexner⁵ has called attention to the futility of intravenous or other means of medication in cerebrospinal and pneumococcic meningitis and has shown conclusively the value of intra-spinal serum injections in the aforesaid diseases. He draws conclusions from the above infections and as a result recommends the technique of Swift & Ellis,⁶ for intra-spinal medication in the treatment of syphilis where the subarachnoid space is involved.

Since the early localization of the disease in the nervous system has been demonstrated as an actual fact, physicians all over the world have been laboring to perfect a method of attacking the disease in this location.

THE STATUS OF SALVARSAN, AFTER FOUR YEARS.

Notwithstanding the fact that numerous deaths have occurred both in this country and abroad following the use of salvarsan, and that special committees have been appointed to pass judgment in regard to its value and toxicity, it still remains the most powerful spirillicide that we possess today. If used with discretion and judgment it is the most valuable single weapon we have in combating the infection, and as for the contra-indications in small doses, not to exceed

0.3 gm. once in seven to ten days, there are none. That the substance is neither harmful to the nervous system or kidneys, has been proven by Doinikow⁷ & Wechselman.⁸

Unquestionably the fatalities and complications laid at the door of salvarsan are errors in technique. Briefly and in order of their frequency they are:

1st. Use of water that contains saprophytic bacteria.

2nd. Oxidation of the drug.

3rd. The question of whether the solution is hypotonic or hypertonic.

Considering the wide use of salvarsan it is safe to say that ninety-five out of one hundred doses are given with water that is neither freshly distilled, filtered or sterilized, and as a consequence, toxic effects are common. Few users of salvarsan or neosalvarsan realize that the drug is very unstable and that oxidation occurs rapidly in the latter, according to Ehrlich,⁹ three hundred per cent. in one-half hour.

Probably few observers understand that distilled water is capable of dissolving red corpuscles, and with an easy water soluble salvarsan (such as neosalvarsan is) solutions are often made which are capable of doing this in the blood stream after they are injected. This is particularly pointed out by Ravaut¹⁰, who uses concentrated hypertonic solutions of neosalvarsan in intraspinal injections.

For the sake of "*safety first*" it is demanded that all solutions be made with freshly distilled (not over five hours old) water, properly filtered and sterilized. The drug should not be permitted to stand over five minutes before using and should always be hypertonic.

Methods of Treatment. Owing to the fact that vital stains were the basis of Ehrlich's chemotherapy, and that such stains and salvarsan are allied in their chemotactic properties, and knowing trypan red and trypan blue (vital stains) to be trypanocides, Tilney¹¹ decided to use these stains on living animal tissue, and especially to observe what happens when intravital injections were used intraspinally, intravenously, intraarterially and subcutaneously.

Accordingly trypan blue was injected experimentally into a cat by the four ways above mentioned. It was found that when injected intraspinally, the dura mater had stained intensely, the brain diffusely, and the other organs of the

body were not stained. Microscopical examinations showed that the trabeculae of the pia mater extending into the cord and brain as well as the walls of the blood vessels were stained. The ganglion cells and nerve fibers were not stained.

Intraarterial injections showed the stain to be confined mostly to the abdominal viscera with no stain in the central nervous system. Injections intravenously showed the dura and pia mater to be involved, but not so intensely as with the intraspinal. The trabeculae extending into the cord were not involved. Subcutaneous injections showed involvement of the abdominal viscera only.

From the foregoing experiment it immediately becomes apparent that we have two ways of combating the infection, once it has localized itself within the subarachnoid space:

1. Intensive salvarsan medication through the blood stream.

2. Intraspinous medication.

Realizing the fact that a large number of all cases which come under observation during the secondary period or later without treatment show spinal fluid involvement, it is pertinent to ask first, what is the most efficient agent; and, secondly, what is the quickest, safest and most effective method of treatment?

Most Efficient Agent. In view of the fact that salvarsan is a spirilloicide with negligible organotropic effects capable of entering the spinal fluid, its superiority over mercury is conceded, whether it be given intravenously or intraspinously.

Quickest, Safest and Most Effective Method. Of the two methods of introducing salvarsan into the spinal fluid, the intravenous is the safer, but the intraspinal is the quicker and consequently more effective.

I have classified my cases of spinal involvement into early and late. By early is meant those cases which have involvement without symptoms or detectable degeneration, by late those which show actual nerve involvement together with marked cerebrospinal fluid infection. Of the first class intensive intravenous injections should be first tried before resorting to direct intraspinal medication.

The plan that I have adopted is to give in the early cases, as suggested by Collins,¹² 5 to 7 doses of 0.5 to 0.4 gm. weekly, then rest 3 to 4 weeks, at the end of which time a puncture is made. If this shows a negative serology, the

SPINAL FLUID ANALYSES

Wassermann Examinations.			Noguchi and Nonne Globulin Tests.							Lymphocyte Counts per Cmm.							Serum Injections with Highest Temperature Reading.							Remarks
Name	Blood Wassermann	1st	2nd	3rd	4th	5th	6th	7th	1st	2nd	3rd	4th	5th	6th	7th	1st	2nd	3rd	4th	5th	6th	7th		
H. W.	—	†	†	†	†	†	†	—	33	27	11	18	7	5	14	11 C. C. serum and 9 C. C. salt. Highest temp. 100.4.	22 days after serum & salt. Highest temp. 99.	32 days after 12 C. C. straight serum. Highest temp. 98.2.	20 days after 18 C. C. straight serum. Highest temp. 98.4.	19 days after 5 C. C. straight serum.	29 days after 21 C. C. straight serum.	30 days after 11 C. C. straight serum.	After each injection there were severe pains in legs, lasting 48 hours. Gastric crisis and paresis have now disappeared.	
F. S.	—	†	†	†	†	†	†	—	46	7	11	15	3	28	18	11 C. C. serum and 9 C. C. salt. Highest temp. 101.2.	22 days after serum & salt. Highest temp. 99.4.	32 days after 12 C. C. straight serum. Highest temp. 99.	20 days after 18 C. C. straight serum. Highest temp. 99.6.	19 days after 5 C. C. straight serum.	29 days after 10 C. C. straight serum.	30 days after 11 C. C. straight serum.	General constitutional improvement. Improved gait and bladder control. Suffered intensely after each injection. Arsenical poisoning twice.	
B. H.	†	†	†	†	†	†	†	—	43	11	5	7	13	16		11 C. C. serum and 9 C. C. salt. Highest temp. 101.	22 days after serum & salt. Highest temp. 99.4.	32 days after 12 C. C. straight serum. Highest temp. 99.8.	20 days after 16 C. C. straight serum. Highest temp. 99.4.	19 days after 5 C. C. straight serum.	29 days after intravenous "606" only.		General improvement. Romberg possibly less marked. Marked pains in legs after each injection.	
B. C.	—	†	†	†	†	†	†	—	5	9	3	3	6			12 C. C. straight serum. Highest temp. 99.	20 days after 18 C. C. straight serum. Highest temp. 99.4.	19 days after 18 C. C. straight serum.	29 days after intravenous "606" only.	30 days after 11 C. C. straight serum.			Insomnia gone. Improved gait and bladder control.	
H. R.	—	†	†	†	†	†	†	—	35	35						11 C. C. serum and 9 C. C. salt.	22 days after 12 C. C. serum and 8 C. C. salt.						Left hospital improved and with disappearance of gastric crises.	
J. R.	†	†	†	†	†	†	†	†	76							11 C. C. serum and 9 C. C. salt.								Left constitutionally improved. Refused to believe he needed further treatment.

treatment is resumed every other week for the same period of time, and later once a month for three months, and still later, every other month. If a negative serology is maintained for a year, all treatment is suspended, but spinal examinations are recommended once every six months.

With an experience of one hundred spinal fluid examinations (to be reported elsewhere), I find that the possibility of eradicating the infection in the early stages by persistent and often repeated salvarsan treatment through the blood stream is possible and that salvarsan so applied often persists and can be actually demonstrated in the blood serum ten days after the last administration where it could not be detected in the urine. The technique of the Abelin¹³ test is as follows:

REAGENTS.

1. Resorcin C. P.
2. 20% HCl.
3. 0.5% NaNO₂.
4. 30% NaOH.

Technique. Make up a 7.5 per cent. solution of the resorcin in the 30 per cent. NaOH. This can now be kept as a stock solution.

Place ½ cc. of cooled serum in a tube, and add 8 drops of the HCl and then 10 drops of the NaNO₂ solution. Mix thoroughly.

In another tube place about 1 cc. of the resorcin solution and then add drop by drop the serum treated with the acid and nitrite solution. In the presence of salvarsan and neosalvarsan or a changed amino derivative a beautiful rose red contact ring appears, most definitely within 1-2 minutes.

Normal serum gives a yellow ring.

2. Intraspinous Medication. A. Injections of salvarsanized serum.

While the time is relatively short to draw any definite conclusion in regard to intraspinal medication, most of us that are familiar with the method, realize the great value that comes from this form of treatment.

Since October, 1913, through the courtesy of Dr. Julius Grinker, I have been treating the following cases of tabes at the Cook County Hospital. A brief report of the serological findings is offered.

CASES. (See Chart.)

The technique here used was the Swift & Ellis¹⁹ (supra), but instead of using the serum

diluted with salt solution, after the second dose undiluted serum was used in quantities from 15 to 20 cc. at a single injection.

While the foregoing cases, all veritable derelicts of humanity, showed a symptomatic and serological improvement, and while I have nothing but praise to offer for results obtained by the Swift & Ellis technique, unfortunately its application is both tedious and cumbersome.

B. Direct intrapinous injections of neosalvarsan. Realizing the necessity of obtaining a more efficient as well as a more rapid means of medication, I have adopted with slight modifications the method of Ravaut as recommended by Wile.¹⁴

Technique. The contents of an ampule containing 0.15 grams is dissolved in 5 c.c. of freshly distilled water. Thus each drop will contain 2 mg. of the drug. A spinal puncture is made and 15 c.c. of the fluid are drawn out into a sterile beaker. The mandrin to the needle is then reintroduced, stopping the flow of the fluid. From 2 to 4 drops of the neosalvarsan are now added to the fluid which has been drawn out.

This is now drawn into a Record syringe, the mandrin is then withdrawn, the needle fitted and the solution slowly reinjected.

If any additional quantity of spinal fluid is required for diagnostic purposes, it can be obtained just before the solution is reinjected.

CONCLUSION.

1. The early diagnosis is the most important feature in the management of any case of syphilis.

2. A Wassermann examination on the blood must be supplemented by a complete serological examination of the spinal fluid if we wish complete control of the diagnosis.

3. Salvarsan or neosalvarsan are still the foremost specifics.

4. Intense intravenous medication in all early cases of subarachnoid involvement should first be tried before intraspinal methods are adopted.

5. For the later manifestations, early institution of treatment within the subarachnoid space will certainly arrest the disease and produce a negative serology.

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BONE TRANSPLANTATION INTO THE SPINOUS PROCESSES OF THE VER- TEBRAE FOR THE CURE OF TU- BERCULOUS SPINE DISEASE, WITH REPORT OF CASES.*

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The transplantation of bone from the crest of the tibia into the split spinous processes of several contiguous vertebrae, as devised by Albee, marks a new epoch in the treatment of tuberculous spine disease. Surgery shows to better advantage here than in tuberculous joints elsewhere in the body; there is no danger of disseminating the infection into contiguous normal bone; no sacrifice of bone to affect shortening, and it is in accordance with orthopedic principles in securing physiological rest thereby affecting the pathologic process.

Let it be understood that I do not favor surgical measures in every case of Pott's disease. The value of any plan of treatment in tuberculous spine disease is estimated by its effectiveness in combating the ultimate deformity. Under conservative treatment recovery may be anticipated in an average period of three or four years, with or without deformity. It is common observation that caries of the middle and upper dorsal region of the spine is very frequently associated with great deformity, whereas caries in the cervical or in the lumbar region, even when extensive, has little or no angular protrusion. Thus, in childhood, routine treatment should be protective, but when conservatism has been tried with disappointing results or in early stages of middle and upper dorsal Pott's disease, surgical intervention is justifiable. In adults, where time plays an important part and quick results are desired, surgical treatment is

the method of selection. Quick results, in the exact sense, cannot be obtained in tuberculous spine disease, but in comparison to conservative methods operation, followed by protective treatment, shortens the duration of the disease many months. The early relief afforded patients from discomfort and pain following the operation is striking.

It is needless to state that the Albee operation has no direct curative action on the tuberculous process. The underlying principle is fixation of the vertebrae in order to hold the spine in the extended position so that pressure on the diseased area may be removed, thus producing physiological rest so essential to cure in this disease.

The success of bone transplantation for tuberculous spine disease depends not only upon good surgical technic, but upon the knowledge of the particular vertebrae affected, so that the *graft may be implanted into the spinous processes of all of the diseased vertebrae and at least two contiguous vertebrae on either side*. This effectively splints the spine. A source of failure is the error of implanting the graft into the contiguous vertebrae of one end only, which inefficiently fixes the spine. To obviate this error it is all important that the extent of the diseased area be accurately determined by a good skiagraph before proceeding to operation.

External support (casts) must not be disregarded for many months following the post-operative period of recumbency, inasmuch as too early reliance cannot be placed on the strength of the graft. It is improbable that a firm bony union exists between the graft and the split spinous processes in this period of time. Axhausen has pointed out that the "periosteum and endosteum proliferate and produce callus, which takes part in the formation of union between the ends of the transplant and the bone into which it is transplanted." It has further been pointed out by Dupuytren and Wieder that "there is no permanent callus formation before the eighty-fifth to two hundred and fiftieth day." Particularly in the middle and upper dorsal region of the spine the strain on the graft is greatest because of the extreme liability to deformity in this region. This liability to deformity is the result of the superincumbent weight being

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greatest on the bodies of the vertebrae due to the normal curve being concave in front.

In the cases where the vertebrae were protected by casts for some months immediately following the period of recumbency on the frame, tracings of the spine show no increased kyphos.

This paper is based on nine cases observed in my practice and on my services at Cook County Hospital and the Home for Crippled Children. Seven of the cases were operated upon by me and two by other surgeons. No attempt has been made to gather cases for statistics from other sources.

Case 1. Fay M., aged 13 years. Complained of pain on forward bending for more than one and one-half years before applying for treatment. Slight lateral curvature of the spine was present, but no kyphos. Under thirteen months of conservative treatment by casts and recumbency on a Bradford frame a kyphos in the lumbar region gradually developed and increased in size. April, 1913, Albee operation. Three months later casts applied until November, 1913. Since this time patient has had no protective treatment and is free from discomfort and pain.

Case 2. M. H., aged 3½ years. For nearly two years has had a kyphos of the middle and upper region of the spine. Walked with difficulty for two months previous to applying for treatment. He was placed on a Bradford frame for five months; casts for five months and then because of pain and inability to walk with comfort was again placed on the frame for four months. In the meantime the kyphos gradually increased. July 1913, Albee operation. Six weeks later protective treatment (cast) was applied for a period of three months. Monthly tracings since then show no increased kyphos.

Case 3. Eddie P., aged 19 years. Admitted to my service at Cook County Hospital, August, 1913, because of pain and weakness of the spine. Had a kyphos of the 7, 8, 9, 10 dorsal vertebrae; walked with care and picked up objects from the floor with much difficulty. August 28, 1913, operation. After two months of post-operative recumbency patient was allowed up without protective treatment. Three months later he was discharged from the hospital without symptoms.

Case 4. Joe M., aged 6 years. Treated conservatively for twenty-two months not only for Pott's disease, but for elbow and hip disease; then by Albee's surgical method, April, 1913. Left Cook County Hospital in June and upon his return, August 21, 1913, was admitted to my service. Complained of much difficulty on walking and of a discharging sinus. In the middle dorsal region was a marked kyphos. X-ray showed the graft not implanted into vertebrae contiguous to the diseased ones.

Case 5. George R., aged 5 years. Erroneously treated for hip disease because of pain and flexion of the thigh. Admitted to my service at Home for Destitute Crippled Children because of inability to walk. Had flexion deformity of left limb; discharging sinus in left groin; muscular spasm of the lumbar spine, but no kyphos. Treatment by recumbency for twenty months without materially affecting the profuse discharge. November, 1913, operation. After two months of recumbency was allowed up and walked without protective treatment. Has no discomfort on walking and no kyphos has developed. The sinus still discharges. The skiagraph showed the bone graft fixed well above as well as into the diseased vertebrae, but not below.

Case 6. Tillie C., aged 7 years. Had deformity of middle and upper dorsal region of the spine for two years, which gradually increased; of late experienced shortness of breath and much difficulty in walking. Treated by recumbency on a Bradford frame. November 28, 1913, operation. Two months later allowed up and walked without protective treatment, but after one week a cast was applied because of grunting respiration. Skiagraph showed bone graft implanted into the diseased vertebrae and two contiguous vertebrae above and below. After three months the cast was removed and again reapplied two weeks later because of the grunting respiration. (Evidently the graft has not yet become securely fixed.)

Case 7. Tony S., aged 20 years. Admitted to my service at Cook County Hospital, complaining for several months of pain radiating from the back to the abdomen and to the thighs, particularly the left, which increased on forward bending. Two distinct kyphoses of the spine present. A skiagraph showed destruction of the eleventh and twelfth dorsal and second and third lumbar vertebrae. December 3, 1913, Albee's operation. Recumbent for six weeks and then allowed to be up and around without external support. X-ray showed graft implanted into the vertebrae below, but not above the diseased area. He is without symptoms except a "slight weakness," referred to the abdomen.

Case 8. John D., aged 30 years. Treated conservatively for Pott's disease before being admitted to my service at Cook County Hospital. Complained of weakness and stiffness of the back and had a discharging sinus in lower right lumbar region of the spine. Some deformity present. X-ray showed destruction of eleventh, twelfth dorsal and first lumbar vertebrae. December 15, 1913, operation. Wound became infected and graft removed about one month later.

Case 9. Della P., aged 19 years. Treated at a local hospital by recumbency and plaster casts for two and one-half years for Pott's disease. In the meantime motor and sensory paralysis of the lower

extremities occurred, as well as loss of control of bladder and rectum. Gradually the paralysis disappeared. March 17, 1913, operation. Recumbent for three months and then wore a plaster cast for one and one-half months. For six months was entirely free from all symptoms whatever. Then the right knee began to "jerk" and was unsteady in walking. Admitted to my service at Cook County Hospital January, 1914. Examination: The back showed evidence of a surgical operation. In the middle and lower dorsal region of the spine was a slight kyphos. The patella reflexes and ankle clonus much increased, particularly the right. X-ray showed destruction of the sixth, seventh, eighth, ninth and tenth dorsal vertebrae, also the graft implanted into the diseased vertebrae and into the lower contiguous ones, but not into the upper.

In conclusion I feel warranted in stating that:

1. In children, with caries of the cervical, lower dorsal and lumbar vertebrae, conservative treatment should be the first resort; in middle and upper dorsal Pott's disease or where conservative treatment has been tried with disappointing results, Albee's surgical method is the treatment par excellence.

2. In adults, where time plays an important part and where rapid results are desired, surgical treatment is the method of selection.

3. The value of a good skiagraph of the tuberculous area of the spine cannot be overestimated. A definite knowledge of the extent of the pathologic process should be had before proceeding to operate. Success here depends, primarily, upon the graft being implanted into the spinous processes of all of the diseased vertebrae and at least two contiguous vertebrae above and below them.

4. Too early reliance cannot be placed on the strength of the bone graft. It takes time for the splint to become securely fixed by permanent callus.

5. External support, either casts or braces, must not be disregarded for many months following the operation.

6. Even with continuation of post-operative external support for a period of six to twelve months the duration of treatment is much shorter than the average duration under non-operative treatment.

7. Albee's surgical method incurs no serious risk to the patient. But the operator who has not been particularly trained for this work may expect unpleasant results.

THE SPECIFIC TREATMENT OF HAY-FEVER BY ACTIVE IMMUNIZATION.*

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We define hay fever today as an exudative catarrh of the conjunctival, nasal and tracheo-bronchial mucous membranes of seasonal periodicity, produced in hypersensitive individuals by the sensitizing and anaphylatoxic action of the pollen of certain plants. The etiology of hay-fever as a true pollen disease was definitely established some fifty years ago by Charles Harrison Blackley of Manchester. He found an able and indefatigable herald for his ideas in Dunbar, who with his pupils, by applying the modern methods of immunology to the problem of pollen disease, gave to it a real scientific foundation on which any future work on hay-fever must be based.

Yet the therapeutic progress in the treatment of this much-maligned disease has not fulfilled the expectations which were held and inspired by the final settlement of the question of etiology. Dunbar's endeavors to produce a passive immunization against hay-fever by means of a horse serum which he believed to contain specific antitoxins against a supposed pollen toxin have brought actually very little change in the helpless attitude of the medical profession against pollen disease, and also in the attitude of the hay fever patients against the helpless medical profession.

The reason for this state of affairs must be ascribed to the tendency of applying too hastily the laws governing the biological and immunological mechanism of living and multiplying microorganisms to the causative agent of pollen disease. The pollen cell holds a unique and singular position. Destined by nature to play the most important part of the plant organism by multiplying the species, it differs from all unicellular microorganisms which cause infectious diseases by lacking completely the faculty of multiplying within the host. It is a formed poison then! Yet a poison proving completely indifferent to the greater part of mankind—though one of the most intense poisons to some. This particular place which we must concede to the

*Read at the sixty-fourth annual meeting of the Illinois State Medical Society at Decatur, May 20, 1914.

etiological factor of pollen disease calls for a brief consideration of the problems of pathogenicity, individual susceptibility and immunity before the specific treatment by active immunization shall be discussed.

Pathogenicity, Individual Susceptibility and Immunity. In the month of August all inhabitants of a community inhale onto their conjunctival and nasal mucosæ about the same amount of pollen. The great majority of them remain completely unaffected, while a small proportion become ill with hay-fever. The pollen protein is then a substance harmless and indifferent to the greater part of mankind, but of poisonous character to some persons. These possess a certain individual susceptibility or disposition to hay-fever, while the great majority is immune to the disease. The mechanism of bacterial infection and the laws governing immunity reactions show phenomena of apparent similarity. If the water supply of a community is polluted by a large amount of typhoid bacilli, only a small proportion of the inhabitants become sick with typhoid fever. This fact is interpreted primarily on the ground that the living microorganism does not find favorable conditions for its growth and multiplication in most individuals. We thus relate the individual disposition for the disease to the varying pathogenicity of the invading microorganism. The pathogenicity and virulence of a bacterium is certainly dependent on its ability to grow and multiply within the animal body, but this definition of pathogenicity is incomplete. The colon bacillus grows and multiplies within the animal body and yet it is, usually, a harmless inhabitant of the human intestines. An infectious disease does not alone result from the growth and multiplication of bacteria, but is conditioned by the parenteral digestion of proteins, which as a foreign element are introduced into the blood stream and tissues as a result of the invasion of the bacterial organism. The pathogenicity of a microorganism, therefore, is a function of its ability to grow and multiply within the animal body, and of its activity in leading to the introduction of foreign proteins into the blood and tissue of the same. This definition comprises the great majority of microorganisms, but does not cover completely the few instances where the microorganism, like the

tetanus, diphtheria and dysentery bacillus, has the additional faculty of secreting a free toxin.

Pollen cannot grow nor multiply within the host. Its pathogenic action, therefore, must rest either on its faculty of leading to parenteral proteolysis, or on its faculty of producing a free toxin, or on both factors combined; and any endeavor to explain individual susceptibility to hay-fever will first have to consider this mechanism of the pathogenic action of pollen. The analysis of all the possible forms of disposition leads us back to this problem.

Dunbar believes that the pollen contains a true toxin in the sense of Ehrlich and his work in the last ten years has been chiefly devoted to demonstrating the correctness of this view. For upon this assumption rests his specific serum-therapy, the passive immunization with pollantin (pollen antitoxin), which he considers a true antitoxin.

There remains the other possibility of explaining the pathogenicity of the pollen, and this is on the ground that the pollen proteid acts as a sensitizer and as a poison by entering the circulation and tissues of individuals subject to the disease. This conception that hay-fever results from the parenteral digestion of the proteins of pollen has been first suggested by Weichhardt and by Wolff-Eisner. Convincing evidence that the symptoms of pollen disease are called forth by the sensitizing and poisonous (anaphylatoxic) action of the pollen proteid, is brought out by the writer's own experimental work.¹

It is today absolutely proven by rigid experiments that hay-fever is a disease due to pollen proteid sensitization and anaphylaxis and it is no longer permissible to speak of this established fact as a conception or an hypothesis.

On this basis we comprehend not only the pathogenicity of the pollen proteid and the mechanism of reaction, but also the "peculiar" individual disposition finds a satisfactory explanation. The pollen proteid reaches at some season of the year the nasal mucous membranes of all persons. The human blood and all secretions of the mucous membranes of the body are digestive fluids and have normally very remarkable proteolytic properties. It has been known

¹ Koessler. *Journal of Infectious Diseases*, 1914, and Koessler, Hayfever in Billings-Forchdeimer *Therapeutics of internal medicine*. Vol. V.

for a long time that the normal nasal secretion shows decidedly bactericidal power; there is no doubt that this is largely due to proteolytic enzymes, whose presence has been experimentally established. This proteolytic enzyme of the nasal secretion in most people splits the pollen like any other foreign proteid gradually down into harmless products, proteoses and amino acids. This cleavage proceeds slowly step by step just as the cleavage of the protein material in the stomach. The poisonous group contained in every protein molecule is therefore, at any one time, present only in small concentration, and since its diffusibility is low, it is rendered inert as cleavage proceeds. The absorption of protein through the nasal mucous membrane is, under normal conditions, exceedingly minute—practically nil. Under various conditions, however, which interfere with the normal digestive function of the nasal mucosa, foreign proteid, *e. g.*, pollen proteid, will be resorbed in sufficient amount to lead to sensitization. Conditions of this kind are: 1, a temporarily insufficient nasal secretion associated with a lowered quantity of normal proteolytic enzyme; 2, stenosis of the nasal canals through hypertrophied turbinates leading to excessive accumulation of inhaled matter and thus to increased resorption; 3, the accidental inhalation of an amount of pollen exceeding the protective function of the exposed mucous surface in the state of temporary nasal achylia mentioned sub 1.²

4. A factor certainly only of subordinate importance, which might be considered by some as playing a role in the resorption of protein from the nasal mucosa lies in the active proteolytic power which most unicellular organisms possess, and by means of which they might penetrate into body cells. The pollen grain possesses a special proteolytic enzyme by whose activity the pollen is enabled in the process of fertilization to penetrate the stigma of the ovule. But the resorption of unformed protein, devoid of this fermentation, similar to the resorption of egg albumin by the gastro-intestinal mucosa under similar circum-

stances, proves that this active proteolytic power of the pollen can well be neglected.

Whichever of the three conditions named above brings about in a special case the resorption of pollen protein by the nasal mucosa, the all important factor is that this first parenteral intake of the foreign protein, through a process not perceived by the individual whose tissue takes it up, has a twofold effect: 1, It injures the epithelial cells of the mucosa and the endothelial cells of the finer capillaries in such a way that the mucosa remains permanently in a state of increased permeability for the protein; and, 2, it brings about a new function of these cells, which consists in the production of a specific protective ferment directed against the specific pollen proteid, the local tissue becomes sensitized.

The primary local sensitization which in a similar way can originate first in the conjunctivæ does not remain localized, and the pollen proteid gradually reaching every tissue of the body with the blood stream, causes all fixed tissue cells, especially those of the endothelial and epithelial systems, to develop this new proteolytic ferment against the pollen proteid. This they pour forth, on renewed stimulation by the specific protein, on the surface of their layer or into the blood stream. However, the cells and tissues first injured and sensitized retain this new specific proteoclastic function with greater persistence and in a higher degree than all other tissues; thus they remain in a sensitized stage and still continue to react when the blood fails to show any proteolytic action in the experiment *in vitro*.

So profound are these changes induced by the first absorption of the foreign protein that they may continue not only for one year, but for a lifetime, and may be transmitted from mother to child. The hay-fever disposition—the pollen sensitization—can be and often is inherited.

When the same pollen proteid which caused the sensitization reaches again the sensitized cells—in the flowering season of the next or any following year—the sensitized cells of the conjunctival and nasal mucosa pour forth the specific enzyme which readily attacks and dissolves the protein which in the state of solution can be readily absorbed.

The effects and symptoms evoked by this proc-

²The protein absorption in the nasal cavity is easily comparable to the gastro-intestinal protein absorption. Normally only a minimal amount of genuine protein passes through the gastro-intestinal mucosa. If, however, the peptic and tryptic fermentation is impaired, *e. g.*, through pancreatectomy, or, if a stenosis is produced by ligating off a part of the intestines, or if an overwhelming amount of protein is introduced, then a sufficient amount of genuine protein passes through the gastro-intestinal wall to be detected in the blood.

ess depend largely on the speed with which the pollen protein is broken up, and thus on the concentration and quantity of the poisonous fraction (anaphylatoxin). The first symptoms are therefore local. The pollen, reaching the mucosa of the conjunctiva, nose, and mouth, is split down and the poison invades the peripheral nerve endings, producing sneezing, itching, and burning in the eyes, nose and palate, followed by vasodilatation, hyperemia and inflammation on more extensive absorption. The increasing intra and extra cellular activity leads to edema and exudation. The nasal respiration becomes impossible and air, and with it the pollen, is inhaled through the mouth. The poison irritates the nerve endings of the palate and larynx, and itching of the palate and a dry laryngeal cough develop and through edema of the eustachian tube often a peculiar tense sensation in the ear. With increasing concentration of the partly dissolved pollen protein, more and more is resorbed into the tissues and blood and then is partly split into its poison. If the protein is set free in the superficial capillaries of the skin, localized areas of inflammation, acute edema with serous exudation will develop—urticaria. The whole organism shows the effects of the protein intoxication; if, preceding the hay-fever attack, 3 hour temperatures have been taken and the normal curve of temperature has been established, elevations of 1-2 degrees, alternating with hypothermia to the same extent can be detected (protein fever).

The most dreaded symptom, the hay "asthma" or preferably pollen asthma, deserves special consideration in its relationship to the anaphylatoxic action of the pollen protein. The protein sensitization can account for this symptom in two different ways: 1. The pollen can reach the laryngeal and bronchial mucosa directly by *inhalation* and be split up in loco by the sensitized cells into the poisonous group. 2. The poisonous group reaches the bronchial mucosa and muscles by the way of the *circulation*. The effect is the same. The anaphylatoxin produces diffuse edema, exudation of the mucosa, and spastic contraction of the bronchial muscles, expiratory dyspnea, acute transitory emphysema—asthma.

Thus the individual disposition to hay-fever is to be explained as a *pollen protein sensitization*, which may have been inherited, or, which

may have been acquired during any period of life.

Treatment by Active Immunization. The clinical observation that the susceptibility to hay-fever decreases, in some patients, with increasing years suggests that an increased tolerance may be acquired during life through the annual inoculations applied by nature. That this immunization is not accomplished oftener is probably due to the capricious method of these inoculations, which are applied several times a day for many weeks and must lead only to the exhaustion of any protective substances formed. The conception of pollen disease as a protein sensitization primarily localized in certain tissues suggested to us the possibility of establishing this higher tolerance for pollen proteid by increasing the area of sensitization by subcutaneous injection of pollen extracts.

What might be considered the first endeavor to produce an active immunity against hay-fever was reported in 1900 by Holbrook Curtis. He used weak extracts of the whole plant (ragweed and goldenrod) in subcutaneous injections and reports favorable results with this treatment. Wagner, Ingals and others have also used various plant extracts for the same purpose and speak favorably of this treatment. Still no mention is made of any continuation of these first trials of active immunization. Dunbar, at the beginning of his researches on hay-fever, had given subcutaneous injections of pollen extracts, using doses which, in the present light of our knowledge, were excessive; being about 100,000 times that which is our average initial dose. He obtained such terrifying results that he did not proceed further along this line of treatment.

In 1911, Noon and Freeman published from Wright's laboratory in London the first scientifically conducted and controlled experiments on active immunization in hay-fever by hypodermic inoculation with pollen vaccine.

Noon injected several patients during fall, winter and spring, with increasing doses of pollen extract of timothy. The interval between the injections varied from 3 to 14 days. The results obtained were controlled by testing the susceptibility of the conjunctiva before and after the injection, and it was found that it decreased markedly as the treatment proceeded. If too large doses were used, the susceptibility was found to increase again, but

soon fell below the value first observed. Noon succeeded in decreasing the susceptibility to 1/100 in most of his patients. Freeman continued the experiments of Noon on the same and on new patients and during the critical season. He treated in all 18 patients. Of these 10 had received the treatment prophylactically during winter and spring—8 after the symptoms of hayfever had developed. He, too, succeeded in reducing the susceptibility of the conjunctiva usually to 1/10; in two cases to 1/1000 of the original value. Three patients obtained an excellent result; 13 were considerably improved; two patients failed to receive any benefit from the treatment.

In the course of a study on the pathogenesis of bronchial asthma and its treatment by bacterial vaccines, which dates back to 1908, I became interested in hay-fever. In May, 1910, unaware of the work done in A. E. Wright's laboratory, I began active immunization against hay-fever and thus far I have treated forty-one patients by this method. Thirty-six of these patients suffered from autumnal catarrh and only five from the spring variety, studied by Noon and Freeman.

A preliminary communication on work along the same line was published last year by George H. Clowes, who reported favorably on the treatment of eight cases.

The Preparation of Pollen Extract. The author's technique employed in obtaining efficient pollen extract consists in the following procedures:

1. *Saline Extract.* One centigramme (.01 gm.) of pollen is broken up as finely as possible in an agate mortar and gradually 10 c.c. of an 8.5 per cent salt solution, ten times as strong as a physiological salt solution is added drop by drop. This saline suspension is shaken for 2 hours and then left in the incubator at 37° for 16 hours. Then the extract is again shaken for 2 hours, centrifuged, and the supernatant fluid separated with a pipette from the undissolved residue. The supernatant fluid which is a dilution of 1/1000, is diluted ten times with sterile distilled water plus 0.25 per cent phenol, which makes the salt solution a physiological one and the dilution 1/100,000. From this dilution all others are prepared. This dilution and all lower ones are unstable and deteriorate by progressive proteolysis into a toxic product within 8 to 10 days. The concentrated pollen solution in 8.5

per cent saline is more stable and on ice can be kept for three weeks.

2. *Alcoholic Extract.* The pollen is first extracted with 8.5 per cent saline solution and the whole procedure carried on as in 1. But the supernatant saline solution after dilution with water to 0.86 per cent NaCl content, is precipitated with ten times its volume of 95 per cent alcohol. The yellowish-white precipitate is filtered off and dried in vacuo to a hard mass. This mass yields a yellowish-white powder, which in a dilution of 1/100,000 produces the typical reaction if instilled into the conjunctiva.

3. We tried further by Vaughan's method (2 per cent NaOH in absolute alcohol) to disrupt the pollen protein in the endeavor to obtain a pollen protein free from poisonous properties. Our experience with this preparation is too limited to be referred to here in more detail.

Experiments showed that all patients subject to autumnal catarrh react most strongly to ragweed pollen extract, and we therefore used this extract exclusively. *The dosage* of the initial dose was determined in the following manner: We first established the minimal toxic dose, determined by the instillation of one drop of pollen extract into the conjunctival sack. This means the highest possible dilution, which in the quantity of one drop (1/20 c.cm), still produces an objectively marked hyperemia. The strength of pollen extract required to bring about this objectively discernible hyperemia varies in different patients. In those who have not been actively immunized before, it lies between 1/20 c.c. of a dilution of 1 in 500,000 and 1/20 c.c. of a dilution of 1 in 10,000; or, expressed in actual quantities of the soluble pollen protein, between 1/10,000,000 to 1/200,000 of one gram. This ophthalmic reaction at the same time serves diagnostic purposes and has been advocated for years by Dunbar. Patients who do not suffer from pollen disease do not give this test even on using ten thousand times the quantity of protein. We tried first to use the intracutaneous test for determining the individual resistance of patients, but we could not obtain satisfactory quantitative results. The susceptibility of the patient, determined by the strength of pollen extract which in the quantity of 1/20 c.cm., i. e., one drop, causes hyperemia of the eye, is the indicator

which determines the initial dose to be used. Noon and Freeman, who proceeded in a similar manner, took as initial dose $1/3$ c.cm. of that dilution, one drop, which produced the eye reaction. But the pollen extract of the *compositæ* especially of ragweed, is far more toxic than that of the *framineæ*. We therefore use as the initial immunizing dose one-half of the actual quantity of pollen proteid, which gives a characteristic ophthalmic reaction. Thus if a patient reacted to $1/20$ of a dilution $1/500,000$, which equals $1/10,000,000$ gm. soluble pollen protein, we start with a dose which is equal to $1/20,000,000$ gram of pollen protein. Under no circumstances, however, do we use an initial dose larger than 1 c.cm. of a dilution 1 in 1,000,000; i. e., 0.000,001 gm. pollen proteid, even if the ophthalmic reaction, according to the above calculation, indicated a stronger dose. For instance, if a patient reacts only to $1/20$ c.c. equal to one drop of a dilution $1/10,000$; i. e., to 0.000,005 gm. soluble pollen proteid, we do not use $1/2$ c.cm. of a dilution $1/200,000$, 0.000,025 gm. of pollen protein, which would be one half of the quantity which gives the eye reaction, but we start immunization with the maximum initial dose—which we consider permissible—1 c.cm. of a 1 to 1,000,000 dilution. To facilitate expression and a rapid comparison between the doses used for testing the susceptibility of the patient and the doses used for immunization, we have adopted a unit of pollen toxin. We understand as the unit of pollen toxin the $1/100$ part of a millionth of a gram of pollen proteid and designate it as one pollen unit P. U. = 0.000,001 gm., or, written in fraction, $1/100,000,000$ gm. Thus, if a patient who is very sensitive to pollen protein gave an objectively marked ophthalmic reaction to one drop = $1/20$ c.c. of a solution $1/500,000$, we should have in this $1/20$ c.c., $1/10,000,000$ of one gram of soluble pollen protein; and this resistance would be designated as $R = 10$ U. P. We should begin his immunization with $1/20,000,000$ of a gram of soluble protein, for instance 1 c.cm. of a solution $1/20,000,000$, and say the immunizing dose is 5 U. P.

The initial dose is determined in the way described. The subsequent doses, the intervals of time to be observed, and the frequency, depend altogether on the time at which the patient

undergoes the treatment. It is most to be desired that the treatment be a prophylactic one, though we have obtained very encouraging results with active immunization if started when the disease was already well developed. Since the first symptoms of autumnal catarrh begin between August 10 and 20, the patients are advised to begin the prophylactic treatment in the first week of May. The resistance is determined by the ophthalmic reaction, and the first immunizing dose (determined as stated) is injected subcutaneously two or three days after the test was made. Only a very small number of patients show any local reaction at the place of injection, consisting in a slight, reddish colored, tumefaction. The next injections are given at intervals of four to ten days, the smaller doses at shorter intervals, the larger one at longer. As far as the strength of the doses is concerned, their increase must be carried out according to the only method to be employed in the active immunization of any disease. This principle, laid down by Koessler and Neuman, in a study on tuberculin treatment some years ago, might be expressed as follows: The increase of doses in active immunization must proceed in such a way that there exists not only an actual increase of dosage, but the difference between the next following and the preceding dose must continually increase or remain the same. But an increase by geometric progression can take place only in the first two or three injections, as this would increase the dosage so rapidly that the patient would respond with very severe reactions. These over-doses not only do not immunize, but they lower the resistance very considerably.

Though the eye reaction is not a safe index for determining the strength of the next dose to be used, it is—if tests are made repeatedly during and after the treatment—an excellent proof that the immunity of the patient against pollen proteid has been actually increased by the injections. In some patients this increase has been several hundredfold and in a few instances even one thousandfold.

Increased resistance of the patient, measured by the ophthalmic reaction, will be noted if the treatment is given not prophylactically, during health, but after the disease has fully developed. The understanding of the mechanism of vaccination during the diseased state is a very difficult

problem, especially in bacterial diseases where it seems unreasonable to add to the millions of virulent bacteria, a few million dead ones. In hay-fever the invasion of the mucous membrane with pollen leads, as we can show by the complement deviation reaction, to an exhaustion of antibodies in the blood. It is not only possible, but very probable, that these protective ferments have not disappeared suddenly from the blood, but that they have accumulated in the organs and tissues immediately affected. For the resistance of immunized patients tested by the eye reaction at a time when we were unable to demonstrate any antibodies in the blood, did not show any considerable decrease. Such an antibody fixation in vivo is by no means an uncommon thing, but is a far more general biological phenomena than is commonly appreciated. For instance, in echinococcus disease, the demonstration of complement deviating antibodies enabled us in a number of cases to make the correct diagnosis before the operation. There occurred, however, some instances where the test was negative and yet an echinococcus cyst was found. The cyst was removed as a whole, completely intact. A renewed test of the blood after several days was positive and showed a high concentration of antibodies. It is probable that the removal of the antigen disrupted the cell fixation of these protective substances, which, liberated, reach all organs of the organism and could be detected in the blood. So it does not seem absurd in pollen disease that, while the organs and tissues immediately affected are actually saturated with antibodies, other areas and cell territories completely impoverished respond well and rapidly to a renewed injection of the sensitizer with an abundant production of protective substances. The duration of the resistance, increased in such a remarkable degree by active immunization, does not last equally long in all patients. We observed in the fall and winter of 1911-1912, that the susceptibility of patients treated in 1911 rose again rapidly during and after the hay-fever season, as repeated ophthalmic tests proved. But two out of ten patients retained a heightened resistance during the winter. Yet all patients who returned in the following May, 1912, responded with such promptness to the first three injections, that a level of resistance was reached which in the year previous had not been accom-

plished at all in some patients; or, in others, only after months of treatment. This emphasized the fact that patients must return each season for several years if the treatment by active immunization is to have a permanent influence on their susceptibility until a level of resistance is reached which indicates a safeguard for any further invasion of pollen.

In the last four years I have treated forty-one hay-fever patients by active immunization with pollen extracts. Five of these had the early spring variety of the disease, and all these began treatment after the disease was already developed. The remaining thirty-six had autumnal catarrh. Seventeen of these patients had prophylactic treatment, whereas nineteen were treated while symptoms of hay-fever were present. Four of these patients have been completely free from hay-fever, though remaining in their usual place of abode. Of these four patients, three had treatment during two years, and one during three years—for two to three months. The supreme test in patients who are apparently free from the disease, is a railway or an automobile journey through flowering meadows. Only these four patients of the forty-one could stand this experiment; two of them have so far remained free for two years, and two for one year. Of the other thirty-seven patients, twenty-nine were markedly improved subjectively as well as objectively. The remaining eight must be considered objectively not improved, though five of them feel subjectively benefited. The marked improvement consists in later, milder, and shorter attacks, in the possibility of remaining in town and at work for the first time in years, in a diminution or disappearance of troublesome cough and constitutional symptoms. Twenty-three of the forty-one patients had previous asthmatic attacks during the day and night in the critical season. Of these sixteen experienced an undoubted amelioration of this most distressing feature of the disease. Six of these hay-fever asthmatics had no asthmatic symptoms, though five of them still retained other symptoms of hay-fever. Others had only two or three attacks during the whole season, were little disturbed in their sleep during the night, while all emphasized the improvement experienced.

In conclusion I wish to express emphatically a word of caution. It will not be long before the

commercial manufacturers of vaccines see "the great advantage and benefit" of this treatment. Hay-fever vaccines will be praised and advertised and put up so attractively that their use will become universal and soon—universally discredited. For the pollen extract is not stable, especially not the higher dilutions. By progressing proteolysis, after three to four weeks it acquires marked toxic properties which lead to severe reactions. The solutions must, therefore, be freshly prepared every eight to ten days if these reactions are to be avoided. Whatever the method of active immunization, whatever the dosage and technique, the one sound basis that must underlie all these endeavors is that the material to be injected must be not only sterile, but constantly of uniform potency if used in the same dilution. No extract of pollen can comply with this demand if it is older than three weeks.

104 S. Michigan Avenue.

ABSTRACT OF DISCUSSION.

Dr. Frank Smithies, Chicago: Mr. Chairman and Members of the Society. It is extremely difficult for one to attempt to discuss Dr. Koessler's paper, for two reasons chiefly: In the first place, very few of us have done so much thorough scientific work on investigations in these lines as Dr. Koessler. In the second place, it is only within recent years that the momentous work of anaphylaxis and like subjects has become so standardized as to admit of a uniformity of popularization which enables people to talk in the same language. It is only within the last ten years that it has been shown that such things as asthma, hay-fever, different forms of purpura, joint affections and even, perhaps, such things as angioneurotic edema and different lesions of the gastro-intestinal tract, as ulcer, have been shown to be evidences of local predisposition to a certain type of poison. Whether this is bacterial or not, we are not yet prepared to state. So that in this work it would seem that we have, while not a complete thing, at least an indication, a way out, as it were, in the handling of this extremely interesting type of diseases. Some fifteen years ago, at Ann Arbor Vaughan and his pupils began the investigations of these proteins as such. It was very early shown that we have and must contend with two things: First of all, practically all forms of animal and vegetable matter can be reduced to a common protein radicle; that this common protein molecule contains a poisonous group and a non-poisonous group. In the second place, we had to realize that in the human body this protein could be digested inside the gastro-intestinal canal, viz., *enterically*, and that it could also be digested by ferments or enzymes in the blood serum in no direct connection with the gastro-

intestinal tract, viz., *parenterally*. This interesting observation, which was carried out by Vaughan, Abderhalden, Nicolle, Abt, and others, rapidly showed us that we had possibilities of diseases from the variation of these ferments or these enzymes in the individual blood serum; that this, on further study, was a varying factor; it changed from time to time; a given individual did not always show this presence of active or powerful enzymes. It did not take long then for Vaughan and others to formulate definite chemical (instead of biologic) theories of immunity which appeared to have a basis of fact and not to be entirely lost in terms.

Dr. C. G. Grulee, Chicago: I would like to say that I acted in the capacity of guinea pig to Dr. Koessler for the last two or three years, and I feel that I have been distinctly benefited by the injections. I have had hay-fever rather badly for five or six years, and I know of many other cases treated in his offices where the asthma has entirely disappeared in a few days. In my own case I know that I have had the period of hay-fever materially shortened by the injection. I feel that sometimes a living example is better than a lot of theory.

A BOOSTER SERMON.*

CHARLES W. CARTER, M. D.
CLINTON, ILLINOIS.

We have it on good dictionary authority that a SERMON is a "serious discourse," and that a BOOSTER is "one giving a helpful push." My discourse, I assure you, is serious. I hope it may have a little of the helpful push that we secretaries so often sadly need. I hope, too, that my sermon may satisfy rather better than that of the colored minister who, after delivering his sermon to a congregation before which he appeared as a candidate for pastorship, was waited upon by a committee and informed that his style of preaching was not satisfactory. He was highly indignant. "Why," he said, "What's the matter with my preachin'? Doesn't I 'spoun the Scriptures, an' doesn't I sputify the Gospel?" "Yas, Yas," said the committeeman. "Yas, you sutenly does 'spoun the Scriptures, and you shore does sputify the Gospel, an' you 'spouns an' you sputifies, an' you sputifies an' you 'spouns, but you doesn't show wharin'."

The secretary of the County Medical Society occupies a peculiar position in the medical world, and if he continues to be a secretary for very

*Read at the Secretaries' Conference at Decatur, Ill., May 19, 1914.

long he will almost certainly come to hold peculiar views as to medical men and medical organization. If he is fortunately constituted he will develop a certain philosophy to sustain his spirit. But if not so constituted he will be almost as certain to fall into pessimism. I know of no other organization in which the secretary has to fill so large a place, no other in which it is his task to build up and keep alive and spur to action by his own energies and largely on his own initiative the entire organization. It is through his efforts more than of any other officer or member that new members are secured. It is he almost alone who must keep in line the indifferent and wavering, must prompt the careless to pay their dues, must arrange for meetings, plan programs, and write and phone and drum and coax and plead to get out enough members to hold a meeting at the appointed time. This may not apply to the larger societies, but I know it to be true in many of the smaller ones. And it is a tremendous responsibility, and takes time and energy, boundless resourcefulness and endless patience. And thus it is that the secretary who is in earnest and has ideals toward which he is looking for his society finds himself in need of the "helpful push."

The County Medical Society is the most important element in the whole scheme of medical organization. But have you ever stopped to analyze the full meaning of membership in the County Medical Society? And what membership in the County Medical Society has meant in the past and whether it means anything different now? Well, we work according to a bill of particulars known as the Constitution and By-Laws for County Medical Societies, and this scintillating gem from the Olympian heights of the American Medical Association sheds light upon the whole matter in its second article, entitled the "Purpose of the Society," where we learn that "The purposes of this Society shall be to bring into one organization the physicians of Dewitt county, so that by frequent meetings and full and frank interchange of views they may secure such intelligent unity and harmony in every phase of their labor as will elevate and make effective the opinions of the profession in all scientific, legislative, public health, material and social affairs, to the end that the profession may receive that respect and support within its

own ranks and from the community to which its honorable history and great achievements entitle it; and with other county societies form the Illinois State Medical Society, and through it, with other state associations, to form and maintain the American Medical Association."

There we have the whole plan of medical salvation in all its alluring beauty. It is as inspiring as an obituary. It fires enthusiasm like an ocean fog. As campaign literature in securing new members it should cause even the bewhiskered quack to forsake the evil of his ways and hasten within the pale.

But to be sure these things do constitute some of the purposes of medical organization. It is eminently true that the intercourse of physicians as members of a County Society does lead to a better understanding the one of the other. It does secure a better harmony and a more intelligent unity and does operate to "elevate and make more effective the opinions of the profession in all scientific, legislative, public health, and material and social affairs." There is pleasure and profit in the reading and discussion of papers in monthly or quarterly meetings. There is valuable deduction to be drawn from the cases reported in these assemblies. Mutual suspicions are disarmed and mutual respect and good fellowship are promoted in the humblest medical organization. But you and I know just how far the appeal of these things is felt in our medical fraternity. You know and I know just how effective they are in drawing men into membership and in keeping them there. Any of these suffices to call together into fraternal union those earnest men who kneel at the shrine of Aesculapius with a sincere devotion, and into whose veins has crept a touch of the sacred fire. Those men, whether ministering to humanity's pain in the populous city or in the humble village, or on the lonely prairie, those are the grand men of medicine. They are the firm pillars of the medical society, and there are enough of these genuinely medical men, thank Heaven, to give us secretaries assurance that medical organization can never utterly perish. But to get hold of and bring into membership and to regenerate, or at least render less harmful, the weak, the indifferent, the unambitious, the sordid, the mere pill peddler for mere profit, that is the sorrowful task that tries the secretary's soul. It is useless

to call the attention of such a man to the lofty purposes set forth in the afore-mentioned section of the constitution. It makes no appeal to him, fires no ambition, awakens no desire. He feels no hunger for fellowship, he doesn't care to hear a paper by some other doctor in the same county. He can stay at home and read in his books what the masters of medicine have to say. He doesn't care to report any of his cases and run the risk of having his diagnosis or his management criticized, or he doesn't want to give away the secrets of his treatment. Or he can't spare the time to attend the meetings, or he doesn't want to subject himself to being bound by rules and regulations and restrictions and limitations, and so so, and so on. And so we resort to more concrete inducements and show him that if he will but become a member, that for a merely nominal membership fee he becomes not only a member of the County Medical Society and privileged to enjoy its fellowship, its dinners, its smokers, its picnics, but without other expense or effort becomes at the same time a member of the State Society and still more, and without further fee or fuss a member of the great American Medical Association, and yet more, eligible, with but another slight fee to become a Fellow in this superlative organization. Moreover he will receive every month the ILLINOIS MEDICAL JOURNAL, a splendid journal, and it truly is a splendid journal, alone well worth the cost of membership. But there is yet the further inducement to come into the society, the medico-legal defense arrangement to take care of his interests and give him a helping hand should he be so unfortunate as to fall into the quagmire of the damage suit.

This is indeed a tempting array of inducements, and helps the secretary no little in bringing in new members and holding together the old ones. A man does his best work, however, when he does it hopefully and with enjoyment and to bring hope and joy into the work of the secretary of the County Medical Society I believe it is necessary to bring to him a larger outlook upon the world of medicine and a more philosophic and perhaps a more idealistic appreciation of the work before him.

I do not sympathize with those who lament the passing of the family doctor as the older generation knew him. There was much that was

beautiful and pleasant in that intimate relationship. But his work was small, his outlook limited as compared with that of the physician of today. To the family their doctor represented all there was in medical skill and knowledge, and an able physician might indeed comprehend almost the whole of the then known medical sciences. But a good family practice bounded the horizon of his world.

Today no physician can possibly keep up with the advance in all branches of medical science and very few indeed are interested in medicine only so far as it applies to their own field of practice. The medical man of today ministers to humanity just as tenderly and far more helpfully. But he is living for the relief not alone of the individuals in his limited field or of the families to whom he ministers but his ambition spurs him to work for the relief and improvement of the whole community, the city, the state, the nation. It does not stop short indeed, of the conquest of disease in the interests of all humanity. He is no more a mere healer of the sick. But his highest ambition is to remove the possibility of sickness, whether by the education of the people or the extinction of disease itself. He relentlessly pursues pestilence to its hiding place and no spot escapes him—be it a filthy cesspool, or a dirty city, a pig-pen or a Panama.

And all this upon his own initiative. The physician has voluntarily taken upon himself this labor of teaching the world how to live safely and happily, though constantly threatened with sickness and suffering. No one has imposed this task upon him. It is not his by any coercion, or law, or threat, or even by request, or hardly even by the desire of those who benefit by this invaluable gratuity. To teach man to protect himself from his own follies and from the dangers of a hostile nature is a wholly self-imposed task, assumed by the physician because of his understanding of his fellowman's frailties and of the suffering that his ignorance entails, and because of his sympathy for him when bearing the burden of disease and wretchedness and sorrow—the fruits of his weakness and his ignorance.

We do not need to fear that this task of ours is a thankless one, or that our efforts in behalf of humanity are to go unrewarded. The world is coming to see the value of this conquest for its emancipation from disease. The physician's

work is looming up big in the affairs of men today and I believe he is coming into his own as never before.

Now these things are being brought about through the association of medical men. Medical progress has its root in organization, and finds its stimulus in the inspiration that arises from the getting together of earnest physicians. The efforts of the man who works alone bear no fruit, and his end is in disappointment and pessimism. The man who imagines that he can labor as effectively and as happily out of the society as within it, is simply not in touch with the spirit of the times. A physician out of the society today is out of date. He is an anachronism, a vestigial remnant of another age. If he wants to be in the game and entitled to have a part in the rights and benefits of this golden era of medical achievement he must join with his fellows in the medical society. And it is up to us as secretaries to appreciate the greatness of modern medicine, and to pass along the inspiration to our fellow-physicians until there shall not be one who must be labored with to bring him into membership.

But to render our work most effective we must realize that in this changing time the character of the medical society must change also, and its functions must adapt themselves to the changes in the professional, social and economic life of the medical men of today. Information of the results of medical progress are available to every physician, however remotely located. Books are printed in countless numbers, medical journals are plentiful and easily obtainable. Modern means of transportation and communication promote the more frequent social and professional intercourse of medical men and releases them from the isolation in which many of them once had to live and practice. The medical society of today must, therefore, be something more than an arrangement for bringing physicians together at stated times to read and discuss papers, report cases, and fix up a fee bill. The medical world is doing big things, not for itself but for humanity. The county medical society has its part to play in this great work, and we simply must think bigger things and do bigger things than we have done in the past.

SMALLPOX

Where ignorance is bliss—somebody must pay the fiddler.

In this day and age when so much is said and widely published about the dangers and prevention of smallpox and about milk as a means of conveyance of infection, it seems impossible that there could be any dairyman in an enlightened community so ignorant as to ship milk into a city while he is suffering from smallpox, and, furthermore, while at the height of the disease, to write a letter to the health authorities saying that he was unable to come into the city to confer with them about dirt found in his milk shipments because he had not yet recovered from an attack of smallpox.

But, incredible as it may seem, this very thing happened during the week just closed.

On March 16 the department collected a sample of milk for sediment testing from a can shipped into the city by B—— Bros., dairy farmers near Bass, Ind. The test showed so much gross dirt that notice was served upon B—— Bros. to call at health department headquarters and explain matters.

On March 27 the department received a letter from Henry B——, one of the brothers operating the farm, saying that he could not come into the city in response to the department's notice because he had been ill with smallpox since March 9 and had not yet recovered.

This was the first intimation the department had received of any illness on this farm, and on reference to the files it was found that milk had been coming into this city right along from the smallpox-infected farm. Needless to say, further shipments were stopped immediately on receipt of the letter. How many Chicagoans have consumed this farm's milk or milk with which it may have been mixed we cannot say.

The health department of necessity depends in part on local health officers in the dairying districts to keep it advised of contagious diseases in their respective districts, for, of course, it is impossible to keep all of the 150,000 dairy farms under constant supervision. The health officer of Stark county, Ind., failed to advise this office of the case of smallpox on B—— Bros. farm.

Mr. B—— himself seems to be so ignorant of the dangers of smallpox that he not only shipped milk into Chicago during his illness, but, very courteously, he wrote a letter to the department, probably licked the envelope sealing edge and the stamp with his infected saliva, and then dropped it into the mail box. In the mail this letter must have been handled by many postal clerks and have come in contact with thousands of other pieces of mail delivered in this city.

Those who are properly vaccinated have nothing to fear. Others have.

—From Bulletin Chicago Department of Health.

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AUGUST, 1914.

Editorials

MEETING OF ALIENISTS AND NEUROLOGISTS.

The third annual meeting of Alienists and Neurologists of the United States, held at Hotel La Salle under the auspices of the Chicago Medical Society, has finished its remarkable five-day session, with Dr. L. Harrison Mettler as chairman and Dr. W. T. Mefford, secretary. It was one of the most enthusiastic Medical Conventions we ever attended. It was largely through the untiring efforts of the secretary, that the program of some sixty-nine papers was assembled. These valuable contributions were read by representative men from seventeen states and over thirty official representatives from various states were in attendance, appointed by the governors of their respective states.

The sessions were marked by large attendances of both physicians and laymen, and intense interest, as witnessed by daily local press reports of a column or more. Through the Associated Press also wide publication was given the scientific discussion and committee reports. The entire proceedings will be published in one volume

by the ILLINOIS MEDICAL JOURNAL, and this book will be of immense value for future reference, covering, as it does, so wide a range of subjects bearing upon insanity in its several phases, epilepsy, mental deficiency in relation to eye disorders, adenoids, heredity and other causes, syphilis, alcoholism, pellagra, the Abderhalden test for dementia precox and the technique of preparing the materials for making the test and many other kindred subjects.

The result of these annual sessions will go far to epitomize and condense our knowledge of problems, the solution of which involves the health, happiness and stability of our people and by the popular character of the meetings, the public will be educated. It is only by an understanding of the causes, the needs and the methods of prevention, and the thorough co-operations of profession and public that adequate legislation can be obtained to control the situation.

Subjoined are four sets of resolutions formulated by special committees and passed unanimously.

A committee will be appointed to place the resolutions before the respective governors of the States, and to call to the attention of the legislatures of these states the defects in their present laws, and it is hoped that a uniform law or plan may eventually be adopted regulating the lives of our mental defectives, the spread of syphilis, or better still controlling it, alcoholism, and if possible get enacted better marriage laws. Following are the several resolutions discussed and adopted by the convention.

RESOLUTIONS PASSED BY THE ALIENISTS AND NEUROLOGISTS.

ALCOHOLISM.

Chicago, Illinois, July 14, 1914.

WHEREAS, In the opinion of the meeting of Alienists and Neurologists of the United States in convention assembled, it has been definitely established that alcohol when taken into the system acts as a definite poison to the brain and other tissues; and

WHEREAS, The effects of this poison are directly or indirectly responsible for a large proportion of the insane, epileptic, feeble-minded and other forms of mental, moral and physical degeneracy; and

WHEREAS, The laws of many states make alco-

hol freely available for drinking purposes; and, therefore, cater to the physical, mental and moral degradation of the people; and

WHEREAS, Many hospitals for the insane and other public institutions are now compelled to admit and care for a multitude of inebriates; and

WHEREAS, Many states have already established separate colonies for the treatment and re-education of such inebriates with great benefit to the individuals and to the commonwealths; therefore be it

Resolved, That we, unqualifiedly, condemn the use of alcoholic beverages and recommend that the various state legislatures take steps to eliminate such use; and be it further

Resolved, That we recommend the general establishment by all states and territories of special colonies or hospitals for the care of inebriates; and

Resolved, That organized medicines should initiate and carry on a systematic persistent propaganda for the education of the public regarding the deliterious effects of alcohol; and be it further

Resolved, That the medical profession should take the lead in securing adequate legislation to the ends herein specified.

Respectfully submitted,

Committee on Alcoholism as a Positive Factor of Insanity.

Chas. F. Read, Chairman, Chicago.

Arthur M. Corwin, Secretary, Chicago.

W. S. Lindsay, Topeka.

T. B. Throckmorton, Des Moines.

Theo. A. Diller, Pittsburgh.

LEGISLATION.

We feel it unwise at this time to make any recommendations in regard to constructive legislation, owing to the lack of proper evaluation of available data as to causes and sources of mental deficiency.

We do, however, recommend and urge regulation of mental deficient and the furthering of investigations as to the causes and sources.

(Signed):

Dr. W. S. Lindsay,
Dr. Carl W. Sawyer,
Dr. J. J. Mendelsohn,
Dr. George S. Bliss,

Dr. E. B. McCready,
Dr. A. C. Rogers,
Dr. Thomas H. Leonard,
And others.

Committee on the Causes and Forces of Mental Deficiency.

SYPHILIS

WHEREAS, Syphilis is responsible for a large percentage of all insanity and mental deficiency; be it

Resolved, That:—

1—Health Departments, (Municipal and State), should be equipped to make laboratory examinations for Venereal Diseases.

2—All Hospitals for the Insane should be equipped to make laboratory examinations for Venereal Diseases.

3—Hospitals and Dispensaries for the treatment of Venereal Diseases, should be provided.

4—Physicians should be compelled by law to report cases of Venereal Diseases, as is now done in other contagious diseases.

5—Applicants for marriage should be required to furnish health certificates.

6—Lectures and Bulletins should be offered freely to the public regarding Venereal Diseases.

7—Newspapers should be requested to use their best influence to educate the people concerning Venereal Diseases.

8—Sex Hygiene should be taught in the Public Schools, above grammar grades, to the sexes separately. (Signed):

Dr. W. A. Evans, Chairman, Chicago.

Dr. Henry A. Cotton, Trenton, N. J.

Dr. B. F. Williams, Lincoln, Neb.

Dr. F. L. Peddicord, Lakeland, Ky.

Dr. H. A. Lindsay, Independence, Ia.

Dr. Edward F. Leonard, Secretary, Chicago.

Dr. G. A. McCaskey, Ft. Wayne, Ind.

Dr. Albert E. Sterns, Indianapolis, Ind.

Dr. S. N. Clark, Hospital, Ill.

Dr. H. I. Davis, Chicago, Ill.

Committee on Syphilis as a Causative Factor of Insanity.

PREVENTION OF INSANITY.

WHEREAS, It is well recognized by alienists and neurologists the world over that certain major factors are the chief causes of physical

conditions, accompanied by mental derangement and deficiency; and

WHEREAS, These major causes are very largely, if not wholly, controllable and eradicable; and

WHEREAS, These major causes are alcoholism, habit producing drugs, venereal diseases, work in unsanitary and unhygienic surroundings, and hereditary influences including the immigration of the physical and mental unfit, therefore, be it

RESOLVED, First, that we recommend to the proper state authorities the absolute control of the sale of alcohol until such time as actual prohibition be enacted; second, that the sale of all habit-producing drugs be strictly regulated in all states of the Union; third, that municipal or state control of venereal diseases be established, with proper treatment for indigent patients, to the end that the spread of syphilis and gonorrhœa be prevented; fourth, that proper, special hospitals for the care and treatment of alcoholism and drug addictions be established; fifth, that municipal, state and national inspection of labor conditions be regularly maintained and child labor abolished; sixth, that the various states pass reasonable and universal marriage laws, that will be reciprocal, in preventing the marriage of the physical and mental unfit; seventh that no known mental defective dangerous to himself and to others, should be permitted to have unrestricted liberty; eighth that adequate teaching of the principles of heredity and sex life be initiated and fostered in the home with the view to its introduction into the curricula of schools—above the grammar grades, this instruction to be given to the sexes separately; ninth, a psychopathic laboratory should be connected with the criminal courts, common schools and all public service and transportation companies and that all employees of said service utilities and transportation companies responsible for the actual safety of the general community, should be regularly examined as to their physical and mental fitness; tenth, that, in addition to the above, we recommend a nation-wide campaign of education conducted through the public press, university and medical schools, boards of health, state, county and city boards of education, women's clubs and any other proper educational mediums, upon the true significance of the development—physical, mental and moral—of the individual and the race, and finally, we recommend that a committee be ap-

pointed to promote the enactment of the above resolutions.

The Resolutions were signed by the following of the committee on Prevention of Insanity.

Dr. J. Cheston King, Chairman, Atlanta, Ga.

Dr. Julius Grinker, Secretary, Chicago.

Dr. Albert E. Sterne, Indianapolis, Ind.

Dr. C. F. Neu, Indianapolis, Ind.

Dr. Henry S. Monroe, Omaha, Neb.

Dr. H. J. Gahagen, Elgin, Ill.

Dr. John A. Lewis, Reno, Nev.

The Other Members of the Committee were:

Dr. H. N. Voldeng, Cherokee, Ia.

Dr. L. Biggs, Fulton, Mo.

Dr. Chas. Ricksher, Lake Geneva, Wis.

Dr. Rock Sleyster, Waupun, Wis.

Dr. J. T. Searcy, Tuscaloosa, Ala.

Dr. C. E. Sawyer, Marion, O.

Dr. Theo. Diller, Pittsburgh, Pa.

Dr. T. B. Throckmorton, Des Moines, Ia.

Dr. Sidney I. Wilfus, Rockford, Ill.

Dr. A. L. Ludwick, Kansas City, Mo.

DR. COOLEY A CANDIDATE FOR CONGRESSIONAL HONORS.

Dr. E. B. Cooley of Danville is a candidate from the 18th Congressional District for a seat in our national house of representatives.

Dr. Cooley has served the State Medical Society as councilor of the 8th councilor district for over six years and was re-elected to that position at the last annual meeting.

While Dr. Cooley's friends were circulating his petition the Danville doctors paid him a flattering compliment by presenting him with a standard size petition filled with the signatures of 25 of Danville's Republican physicians. The others could not sign his petition, but are with him just the same.

As is usual in such cases the machine publications are out against him. Up to this time the only argument they have produced as to why he should not be elected is that he is a doctor, and that he is educated. These we take it, are, in the mind of these same publishers—adequate reasons why the doctor should be defeated. It is quite possible that the political mind of the newspaper editor grasps the idea that a man who has been so near the people, a man who

has so long looked to both the physical and material welfare of his constituents—and a man who so well knows the needs of his community could not easily be used in political chicanery.

We do not need to state that the medical profession is not represented in our legislative bodies. The fact is only too patent that the medical profession is very frequently badly misrepresented. A duty that every physician in the 18th district owes to the medical profession is to support Dr. Cooley in his candidacy. If every physician in the district will work for the election of the doctor there can be but one result, and that is Dr. Cooley's election—and it would also show that medical organizations may be made effective.

There is not a doctor in any congressional district who can not persuade many of his clientele to vote for a high grade man for a legislative position. The people want men of brains and men of honest principle to fill these high offices. If every doctor in the 18th district will each secure the votes of 15 of his patrons, the victory—not for Dr. Cooley alone, but for the commonwealth and for the medical profession, is won.

TUBERCULOSIS NOTES.

Prof. Sablis method of tuberculin treatment:

Begin by a minute injection of a very dilute solution of tuberculin.

Repeat each dose of tuberculin at least 5 times in afebrile cases in good general condition, and 10 times or more in febrile cases, in order to judge accurately of the stimulating effect of the dose on the defensive mechanism of the body.

Thereafter increase the preceding dose by $\frac{1}{2}^{\circ}$ only. When the optimum dose shows itself by a favorable therapeutic action, however slight, keep to that dose as long as its favorable action permits.

Avoid reactions in treating as you would rattle snakes.

Tuberculin must be used if at all as soon as diagnosis is made, and not wait until all other modes of treatment have failed. It is a remedy for early non-progressive tuberculosis and results cannot be expected (but do sometimes occur) in advancing cases.

High frequency treatment recommended by Dr. H. Van Rensselaar.

Friedman's remedy is still being given space in journals. How long will it take to be forgotten?

Nascent iodine is strongly recommended in treatment of tuberculosis K. I. gr. 20 in A. M. Chlorin water oz. 1. tid.

Dropping tuberculin on skin from 1.25 dilution to pure tuberculin and rubbing it in until it has disappeared recommended by Kutschera. Used once a week and doses gradually increased in strength. To be continued two years after last manifestation has disappeared. F. J. F.

SPEAKING OF INFANT WELFARE.

Several "high class experts" are reported to have testified at Washington recently in behalf of dealers in dirty milk that they would not consider milk "filthy" unless there was enough manure in it to "give it a brownish color or an odor."

Do you think these gentlemen would get many votes from the mothers in Chicago?

A baby saved is a blessing earned.

Saving a baby costs the public so little; losing a baby costs a mother so much.

DIRT IS

Disgusting
Disfiguring
Devitalizing
-e-a-d-l-y

The dirt rate of a city is a big factor in determining its death rate.

A vigorous anti-dirt campaign would do Chicago more good than any other kind of an "anti" campaign of which we are able to conceive—more good morally, physically, healthfully and eventually with respect to its reputation.

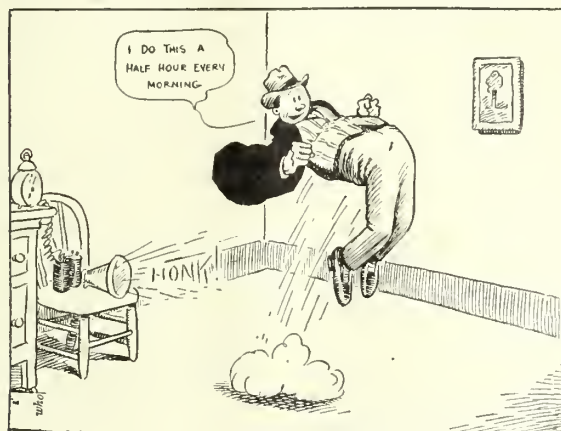
In his address of greeting to the International Congress on the Welfare of the Child, at Raleigh, N. C., in April of this year, Secretary of State Bryan speaking of child welfare work and the appeal it makes to every good heart, said:

"The child is the creature of its environment. It comes into the world without its volition. It has no way of shaping the conditions that surround it. It must be acted on by forces that it neither selects nor can control. Therefore, as the child is the most helpless thing in the world it is the thing that most needs the consideration of others."

Commenting further, Mr. Bryan emphasized the fact that child welfare work returned to society benefits far out of proportion to the amount that is expended. "We are learning," he said, "that it is much cheaper to keep a child from going wrong than it is to bring it back and to recompense society for the injury that it has done. There is therefore no money that is more wisely spent than that which is spent in the care of the child."

Auto Sparks and Kicks

WHY NOT TRAIN PEDESTRIANS?



Courtesy of The Chicago Tribune

PEROXIDE IN GASOLINE

According to an item in *Motor Age*, a new use has been found for hydrogen peroxide, a chemical which heretofore has been considered to have its principal value in the manufacture of blondes. To George B. Celden is due the credit for the discovery. His latest contribution is the fact that if kerosene is treated with peroxide of hydrogen, it burns freely and completely in the cylinders, causing no smoke or smell in the exhaust, and forming no deposit. Further, that ordinary carbureters can be used, if they give a sufficiently wide range of air adjustment, and exhaust gas can be used for heating them. As the incomplete combination of the raw kerosene, with the attendant carbonization and smoking has been the chief obstacle in using the cheaper fuel in gasoline engines, this development may give kerosene a much wider use. As to the cost of the treatment, it is stated that this is little more than the labor of handling.

Theoretically, the complete combustion of fuels as a result of treatment with peroxide of hydrogen is to be expected, for when it is decomposed by heat it gives off quantities of oxygen which unite with the fuel proper.

CAMPOR AS VITALIZING AGENT

Abroad, where great pride—and just pride—is taken in the mileage per gallon of fuel that can be obtained, a small band of motorists recently

has been experimenting with gum camphor as a “dope” for gasoline. Usually about one ounce of camphor is placed in five gallons of gasoline and it is stated by those who use the mixture that the operation of their motors is much better with the camphor in the gasoline than without it. One motorist even goes so far as to claim that he has been able to increase his mileage per gallon as much as 20 per cent, though it would seem that the increase cannot be due to the use of the camphor alone. The idea is not new, of course, for Curtiss, at present of aeroplane fame, used it a number of years ago in his racing motorcycles and it is said he sometimes uses it now in his aeroplane engines.—*Scientific American*.

A GLYCERINE SOLUTION FOR SUMMER RUNNING.

Taking a lesson from the steam boiler, many motorists have adopted with success the practice of using a small amount of glycerine in their cooling water, not as an anti-freezing mixture, but as a scale preventive. The glycerine in the radiator has a tendency to eliminate the formation of a scale. A proportion of one-half pint to each five gallons of water is sufficient for this purpose.

TO AVOID BREAKING AN ARM.

Many a broken arm and worse would have happened had not the following advice of George A. Hows, the founder of the famous Panhard oil business been followed: When cranking, place the thumb against the index finger and take the handle between the four fingers and the palm of the hand. The hand thus opens readily should a back-kick occur. Always crank up, never down.—*Motor Print*, July, 1913.

The teacher said, “Vast swarms of flies descended on the land and came into the houses of the Egyptians and covered their clothing and their tables and all their food, but there were no flies on the children of Israel.”

Small boy, “Please ma’am, there ain’t none now, either.”

“Did you drink the water very hot an hour before each meal as I prescribed,” the doctor asked, “and how do you feel now?”

“I tried hard,” the patient wailed, “but I had to stop too soon. I drank for 35 minutes and it made me feel like a balloon.”

Society Proceedings

COOK COUNTY.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular meeting held December 16, 1913, with Dr. George W. Boot in the chair.

LIP-READING FOR THE ADULT DEAF.

Miss Gertrude Torrey of Chicago read a paper.

Abstract: Some people find lip-reading hard to learn; others find it comparatively easy. This is due to a difference in the type of mind. Teaching lip-reading becomes a psychological problem. The theory and basis of lip-reading can be mastered in three or four months. Sometimes one becomes a fairly good lip-reader in that time, but usually the first three months should be followed by from six months to a year or more of very thorough practice. A good lip-reader can almost entirely overcome the handicap of deafness.

Every vowel and consonant has its own movement. Each movement is studied and then applied in words, in sentences, in stories, vowel exercises and consonant exercises are used, conversation practice, etc. The psychological side is developed.

Successful lip-reading depends upon the *application* of the principles. The most important point is a great deal of intelligent practice.

Miss Torrey gave a demonstration of two pupils, one entirely deaf, one very deaf, who carried on an impromptu conversation on various topics with her. They also talked with some of the physicians and one spoke German with Dr. Beck, though all instruction in lip-reading had been in English.

DISCUSSION.

Miss Mary McCowen thinks that Chicago is fortunate in having Miss Torrey, because there are a great many people in Chicago suffering with partial deafness, more than can be taken care of by the teachers who give their time principally to teaching of deaf children. There are in operation in the night schools of the city of Chicago classes for adults who are becoming deaf. Such classes are maintained on the south and north sides. But in these schools it is impossible to take care of all the people who wish instruction, because there are not enough teachers properly trained. The speaker's work has been very largely with little children. Speech reading is used, but it is purely incidental in the case of children. The first thing is to give these children an education, and speech is used as a medium of communication. With the adult speech reading is, of course, a translation. It is learning another language. As Miss Torrey said, it is a language of movement, but the speaker would add that the movement is limited by the eyes.

Another point with reference to the speech reading of adults: It is a tremendous advantage for a person who is partially deaf to begin to get speech

reading before he or she is acknowledged to be very deaf, for his or her own sake, and also for the sake of others. If the community reaches the conclusion that a person is deaf and that it is difficult to communicate with him, before that person had acquired speech reading, he is forever handicapped. It makes no difference how well he acquires it afterwards. Many have acquired very excellent speech reading through their own determination.

Dr. E. L. Kenyon said that when one has reached the point in loss of hearing where ordinary conversation has become difficult, that person is bound to go through life with a great handicap. His mother was deaf from the time she was thirty years old, following typhoid fever. She was so deaf that she could not hear ordinary conversation in a room. She never had any training in lip-reading—the doctor did not know what the status of lip-reading was at that time—but the speaker's life is filled with realization of the pathos of deafness.

Of course, when an adult becomes deaf, he does not necessarily become totally deaf, as we all know. The point which he wishes to emphasize was that one should conserve every bit of hearing that can possibly be conserved. One should not only cultivate lip-reading in those that are deaf, but still have hearing, but he should cultivate increased capability of hearing for words. He would take up Miss McCowen's thought, that lip-reading should be begun early, before hearing has been lost, and go further: He would say that training of the ear should be begun the moment, or as soon as possible after, the individual knows that he is to become deaf. We hear largely by hearing key sounds, particularly if we hear badly. These key sounds are sounds which give us a cue as to what the rest of the word is. So his contention would be that we should educate the hearing of these people by analyzing the words phonetically for them, with the idea of giving them an appreciation of the individual sounds in those words, so that they could better interpret the complete word from the part heard.

Possibly something could be done by this organization to inaugurate a movement for the education of the public in the matters of prevention and amelioration of deafness. How many people, for example, are acquainted with the value of lip-reading to the adult deaf? Or how many are familiar with the importance of early teaching of lip-reading to the child who has become deaf? Or how many appreciate the necessity of early treatment of pathological conditions affecting the ears? Such a social work of education is being done for the eye and should be done also for the ear.

Dr. Joseph C. Beck said that we are having less deafness than formerly, which he believes is due to the fact that we recognize the etiological factors producing deafness. Of course, this does not refer to cases of congenital deafness, but to cases of acquired deafness.

As long ago as last year, in discussion at the state

meeting, the speaker voiced an opinion against this attempt to teach the hard-hearing individuals lip-reading and he thought, as Dr. Kenyon mentioned, to stimulate the hard-hearing people to try and hear without watching the lips and so stimulate the auditory nerve and the acoustic apparatus, so that it would be kept in action. He always remembered this lesson from Professor Zaufal, who insisted on that. But he believes now and is willing to be convinced that the mistake is perhaps made too often the other way in waiting too long. Especially is this the case in otosclerotic individuals, and he has now under observation several patients of this form who are being instructed in lip-reading.

Of course, some people learn lip-reading readily, as he would show by the demonstration of a case, but others find it very difficult. For instance, he has a patient, thirteen years of age, who is practically deaf, but who does not respond the least bit to lip-reading.

Something might also be said on the side of the question that many people run their words together in speaking, or there is not much lip action, or people do not accentuate clearly, and so that is a difficulty in understanding them, especially for hard-hearing people.

Presentation of patient: Young woman, twenty-four years old. Diagnosis, otosclerosis. Practically deaf for seven years and hard hearing since eight years of age. This young woman is a perfect lip-reader and never has had a single lesson. The hearing test in this case shows that only the loudest whistles can be heard. (Demonstration of patient reading the lips of various individuals.)

Dr. J. R. Fletcher asked Dr. Kenyon, since he had had experience with deafness in his family, what he considered the relative catastrophe between deafness and blindness.

Dr. Kenyon said he did not know that he had an intelligent answer for this question, but that Miss McCowen might have. He has never analyzed it carefully enough to know. It might be somewhat temperamental with the individual and also depend somewhat upon the life conditions of the individual. On the whole, he is inclined to think that deafness is a more serious affliction than blindness. There is something so essential to human contentment that people should be able to carry on quick thought with those about them.

Dr. J. R. Fletcher mentioned this because a gentleman voluntarily said to him the other day that it seemed to him deaf people are far worse off than the blind. This man said he had lived with two uncles, one deaf and the other blind. The blind man was one of the happiest men and the sweetest of natures. The deaf uncle was mean, morose, melancholy and suspicious, and generally disagreeable, and life was not worth while. This man said that he would choose blindness, if necessary, of the two afflictions.

Dr. Otis H. Maclay had been very much pleased

with Miss Torrey's paper and the discussion and believed all the members would join with him in this expression of appreciation.

There is one point otologists should consider, namely, that when patients are not being helped they should be advised to learn lip-reading. It would be only fair to them as well as to the profession as a whole.

A future meeting of the society might be arranged where we could follow out some of the ideas brought out at this one.

Dr. J. Holinger asked what is the pathology of these cases? Most frequently they are otosclerosis, starting at the age of sixteen, eighteen or twenty. As soon as we notice that the patient is going beyond the usual degree of hard hearing, where he cannot very well understand conversation, then he is certainly a subject for lip-reading. Hearing exercises are of no value.

In labyrinth deafness after infectious diseases, scarlet fever and typhoid fever, etc., the deafness is from the start of such a degree that lip-reading is absolutely necessary.

In hard hearing caused by chronic suppuration of the middle ear the danger to the life of the patient is often more important than the function of the ear.

Miss Torrey, in closing the discussion, referred to the thought suggested by Dr. Beck, on the possibility of lip-readers not trying to hear. As a rule, a person who is deaf and who is *not* a lip-reader does not try to hear unless addressed personally. He thinks it is too hard, or useless, and he is apt to become engrossed in his own thoughts. This fact is admitted by many who are deaf. Successful lip-reading calls for absolute concentration and for great mental alertness which reacts upon all the senses, making them more sensitive to the impressions they receive. A good lip-reader sees more and feels more than the average "normal" and probably hears more than a nonlip-reader of the same degree of deafness. For the mind is ready to respond to anything that will help in understanding, no matter through which sense the help comes. And for this reason it seems probable that the ear is used fully as much as in the case of a nonlip-reader.

DISEASES OF THE ANTRUM.

Dr. Truman W. Brophy of Chicago presented a paper:

Abstract: Ninety-seven per cent of all people have diseases of the teeth. The teeth, therefore, are more subject to diseases than any other tissue of the body. The physician should have some knowledge of the symptoms produced by diseased teeth. It is through this lack of knowledge that many operations about the face are failures. The making of external incisions through the face based upon an erroneous diagnosis is an unwarranted procedure, yet it is of common occurrence.

The anatomy of the antrum was then taken up in detail. Following this, the author opened a discussion

upon empyema of the antrum. When we realize that the apices of tooth roots often penetrate the antrum, it is easy to understand why empyema of the antrum so frequently follows the formation of dento-alveolar abscesses and other infections of dental origin. A tooth with a dead pericementum is like a piece of necrotic bone; it should be taken away. Suppurative dento-alveolitis unquestionably may be the cause of empyema of the antrum. This is frequently overlooked. Empyema of the antrum may also follow rhinitis, infection of the frontal or accessory sinuses, foreign bodies in the antrum and diseases of the nasal tract. It also comes as a result of careless handling after removing a tooth. The antrum may be punctured by the examiner and infected material forced into it. Fully seventy-five per cent of the cases are the result of some dental lesion. The surgeon should use every means at his command to determine the vitality of the teeth in empyema of the antrum.

The symptoms of empyema of the antrum followed this discussion. In the diagnosis of this condition it is not necessary to open the antrum through the nose, as a small opening may be made in the canine fossa and the cavity flushed out by inserting a syringe. The dental engine may be used here advantageously. Transillumination and x-ray pictures should be brought into service. It is essential to examine all the teeth.

In the treatment of empyema of the antrum it is necessary that thorough drainage be established and that polypi, diseased teeth and bone and foreign substances be removed. The removal of a sound or diseased tooth for such a purpose is not warranted, except where the tooth is not firm in its socket. Although diseased teeth may have been the primary cause of the condition, they are often amenable to successful treatment. The importance of the function of the teeth demands that they should be cured, if possible, and restored to usefulness. The various operations for the cure of empyema of the antrum were then discussed. Regarding the openings made into the antrum through the nose the author stated: "Nature created an aperture of communication, the ostium maxillare, between the nose and the antrum. It is the surgeon's duty, in case this opening has been closed by adhesions as the result of inflammation, to open it and re-establish its function, instead of making a large unnatural opening at the base of the nose through which dust and mucus may enter the antrum, thus becoming a constant irritant and making the permanent cure of the disease impossible."

Any operation for the treatment of chronic empyema of the antrum which does not admit of an ocular examination of the antral walls is extremely faulty. In nearly all cases of chronic empyema, polypi are seen. It is their presence which explains the failure of cure in so many cases treated through small openings. To treat the antrum in such a manner as will give the surgeon a complete understanding of the exact condition of the part, a large

opening through the canine fossa should be made. After the patient is anesthetized, the lip is reflected upward and an incision is made one and a half inches in length directly above the cuspid tooth root. Another incision is made downward a half inch above the first one, and the periosteum elevated so as to leave a considerable area of bone exposed. The cavity is then punctured by means of the dental engine and a bur. A button-shaped piece of bone is removed and the finger introduced. Polypi are curetted and foreign bodies removed. The mucous membrane in the walls, if possible, is not disturbed. The antrum is then dried with sponges and the cavity packed with sterile gauze. The gauze is changed every other day for ten days, when an antral plug is made and placed in the opening. This is kept in until the walls of the antrum are normal, which is determined by illuminating.

DISCUSSION.

Dr. C. M. Robertson said there are some points about diseases of the antrum that Dr. Brophy did not mention, and which the speaker thinks are not generally understood. One is that antrum diseases are sometimes caused by posterior ethmoiditis and sphenoid abscess. He noticed in some of the pictures that the laminae that were present in some of the antra were more complete than in others. This was due to the formation of the antrum in early life, in which the ethmoidal cells pushed down. Those are ethmoidal cells; they are not part of the antrum. Those are the inferior cells of the ethmoid, just as we have the superior cells going over the orbit and the cells that go down into the middle turbinate, the middle cells. This condition Dr. Robertson has noticed very frequently in the cadaver.

Regarding the etiology, of course, the dentist requires that everything comes from the teeth, so that Dr. Brophy says that seventy-five per cent of the cases occur from dental origin. We will in turn give him twenty-five per cent and say seventy-five per cent occur from nasal origin. We will have to admit, however, that most of the cases show a caries in the molar teeth.

We have cases of non-suppurative inflammations of these sinuses. The first man to discuss and write about this was from the middle part of New York state and the speaker believes that he was the next one. Then Dr. Brawley of Chicago reported on a number of cases with all the subjective without the objective symptoms of empyema.

One of the most common symptoms that we have to treat in connection with antral diseases is the condition that occurs in the respiratory tract further down, resulting in asthma, bronchitis and the reflexes that occur from the pus in the nose. The objective sign—pus in the antrum—does not mean anything; we can have it from so many causes.

Walter's negative pressure apparatus the speaker had never heard about before, but he had heard of

other negative pressures, and it is hard to imagine a better negative pressure than the Brawley pump, or the pump of Dr. Pyncheon.

Puncture through the canine fossa has always been objectionable to Dr. Robertson on account of, first, infection that occurs in the mouth from the nose, and, second, in the antrum from the mouth. The antrum is a nasal accessory sinus and it seemed to the speaker that drainage should be made in the place where nature intended it to be. We do not recognize the alveolar process as a place for draining. Neither does Dr. Brophy. Dr. Brophy's canine fossa, or the Caldwell-Luc route, is a more direct and better one than the alveolar. But the antral wall of the inferior meatus, in the speaker's opinion, is the selective point. He read a paper on radical operation on the antrum about five or six years ago before the North Side Medical Society and it was at that time criticised. It was said that it was impossible to do what he said he could do. He has demonstrated time and time again that he can operate upon the antrum of Highmore and cut away the entire inferior wall—that is, the wall in the inferior meatus, and save the entire inferior turbinate body, so that anybody looking into that nose could not tell that the antrum had been opened, and at the same time the antrum has an opening of the entire extent of the inferior meatus. This, to his mind, is a better operation than the Denker or the Caldwell-Luc, or the operation of Dr. Canfield, and it is very easy of accomplishment. The operation is done exactly the same way Dr. Brophy does, so far as entering the antrum. After the antrum is entered, the maxillary wall is cut away, down to the nasal wall, so that you can see the attachment in the antrum of the inferior turbinate body, which is a decided ridge, always running from before backward and downward. In this operation the nasal mucous membrane is saved. We don't go into the nose until the operation is completed. In doing this if care is taken to cut away the bone at the top of the supposed wound-to-be, going along the attachment of the inferior turbinate as far as you wish to make your opening and then tearing down the wall to the floor of the nasal cavity, we can level off, no matter whether the antrum goes below the floor of the nose or on a level with the nose, or above. In this we do not have any place for the pus to collect. After that wall is completely dissected away, the mucous membrane of the nose having been left intact, not having as yet been perforated, the floor of the antrum and the floor of the nose being on the flush absolutely, then the cavity of the nose is opened by a sagittal section through the mucous membrane, making four flaps, and the four flaps are then folded back into the antrum. It is the same thing as the Denver operation contemplates by one flap, but Denker is careless about the technic, so that he has a mucous membrane that does not attach, and therefore the antrum fills up again by granulation. If

you are very particular, folding the flaps around the corners of this newly-made opening into the nose and holding the mucous membrane flaps of the nose in place by packing, the opening becomes permanent just as you leave it, and the inferior turbinate is not touched at all. In that way the dirt does not fall in, there is no mucus, there are no crusts and nobody would ever know that that antrum had been opened, although you have an opening equal in extent to the amount of bone cut away from the inferior meatal wall. The buccal cavity is closed as the last step of the operation. The packing is left in long enough for these flaps to attach, and that is all the treatment necessary. There is drainage produced and our distinguished friend, Dr. Brophy, after he produced his drainage, which he says it is essential to produce, and all that is necessary, then tells us about therapeutics. That part of the paper Dr. Robertson would criticise. There is no necessity for therapeutics. He never washes these cavities out after operations. He has never seen one case of scabbing, and he has never seen a case with permanent discharge, except where necrosis is extensive. He leaves the dressing in for five days; it comes out easily without tearing the flaps loose, and there is a permanent opening that does not show. And that, to the speaker's idea, is a classical operation. He has performed it for five years. He has examined these cases repeatedly to see if they remained as he left them, and they did.

The speaker believed with Dr. Brophy that we should be conservative of the nasal mucosa, because that is a most important physiological tissue in the body. It is a respiratory tissue and it is wrong to injure these tissues in any way when it can possibly be avoided.

Another thing: There is a difference between polypi and exuberant granulations. His idea is that very many cases of empyema of the maxillary sinus have no polypi at all. They are all exuberant granulations. One is a product of heat and moisture; the other a myxoma, which is a true growth.

Dr. Freer said a polypus was an inflammatory product, not a myxoma.

Dr. Robertson said it was an inflammatory polypoid edema—granuloma. He has a patient, who has been exhibited by him on various occasions, who has a bilateral empyema of the maxillary sinus of some years' duration, and her nose is still full of so-called polypi. This woman's antrum is washed out by means of the ordinary grooved Kraus cannula, and after two or three days she will blow polypi out of the nose. In a condition like that, if you produce drainage, the polypi will shrink up. Those are exuberant granulations, and as soon as you take the moisture away the things disappear. He has had several cases recently in which molar teeth were found in the antrum, one against the nasal wall in the anterior corner. The most important part of the whole operation—to get the anterior apex of

the antral cavity as clean as this—is the point most apt to present persistent granulations.

Dr. Otto T. Freer said that Claoue, of France, and Rethi, of Vienna, followed by Holbrook Curtis in America, were the first to intranasally remove a portion of the nasal wall of the maxillary antrum for the relief of empyema. Dr. Freer was the first to perform and advocate the operation in Chicago. His first case was presented to the Chicago Laryngological and Otological Society in 1904 (ILLINOIS MEDICAL JOURNAL, 1905; *Laryngoscope*, 1905). The perfected method was described in *The Journal of the Michigan State Medical Society*, 1912. Experience has only confirmed Dr. Freer's impression of that time, that the ideal method for the relief of chronic antral empyema is the intranasal resection with bur and trephine of a large part of the nasal wall of the antrum in the inferior meatus. Had Dr. Brophy seen Dr. Freer's results he would not have mentioned as facts theoretically reasoned evil consequences. With only rare exceptions, the patients recover in a few weeks and stay well, and Dr. Freer has seen none that suffered from the drawbacks spoken of by Dr. Brophy. After the bone wounds are healed there is no scabbing, there is no chronic mucous discharge, and the mucous membrane, both within and without the antrum cavity, looks moist, pink and healthy in all but the very rare complicated cases.

In the exceptional cases, where pus continues to come from the antrum after the operation, it usually does so because the antrum acts as a receptacle for discharge from a suppurating frontal sinus. Caries, polypi, irremediable degeneration of the mucous membrane and ulceration are conditions given a prominence in textbooks that would make them seem not unusual complications of antrum suppuration, while in reality they are extremely rare, the rule being that inspection through the intranasal opening shows the mucous lining of the antrum to be normal and not even thickened. The level of the floor of the antrum below that of the nasal cavity does not interfere enough with drainage to be of moment.

Not only does an opening through the nasal wall open the antrum into the cavity with which it is intended to communicate; that is, the nasal cavity and not the mouth, but the nasal wall of the antrum is anatomically its least important one, and it is only where direct access to the antrum is demanded for such conditions as tumors or caries that the route through the facial or, as it is also called, buccal wall should be chosen, for this highly organized wall contains the roots of the teeth and the anterior dental nerve. In fact, an opening through the facial wall is, in all but the rarest cases, an objectless mutilation.

For three reasons the simple operation through the nasal wall should supplant for all but complicated cases of chronic antrum suppuration, the needlessly formidable Caldwell-Luc, Denker and Canfield operations, which interfere with the facial skeleton

and are seldom necessary. I emphasize this, because even after so many years the intranasal operation is not yet generally appreciated and patients are unnecessarily being subjected to the extensive procedures mentioned. The chief reason for the popularity of entrance to the antrum through its facial wall is the unfamiliarity of the average surgeon with intranasal work, so that the easier direct way is chosen, to the patient's detriment.

The resection of the nasal wall of the maxillary antrum in the middle meatus, practiced by some, has the serious objection that the orbit is in danger of penetration and it has been penetrated by puncture in this region. The opening obtainable in the middle meatus is a narrow slit which does not permit of inspection of the interior of the antrum, as does the opening in the lower meatus, while drainage is poor, as the opening is at the very top of the antrum. There are cases where the pus in chronic empyema clots into a mass of cheese, which lies in the bottom of the antrum and requires a large opening for its removal. The middle meatus route is not even good for diagnostic puncture with a trocar, for in washing out the antrum through the cannula of the trocar the return flow may bring clear water, the entering stream having merely flowed over the thick pus lying in the bottom of the antrum. I describe this from my own experience.

As an example, Dr. Freer relieved a young woman of a double antrum suppuration by broad openings in the lower meati after openings through the middle meati by another operator had been of no avail. The only excuse for choice of the middle meatus route is that it is an easy one.

As Dr. Freer operates, his first opening is made for diagnosis. He is as fond of the dental engine as is Dr. Brophy, and regards it as typifying the genius of oral surgery, which Dr. Brophy has done so much to advance. General surgery can show no such beautiful instrument. A large trephine driven by the engine is introduced underneath the inferior turbinate after previous cocaineization with pure cocaine in the form of flake crystals. The trephine's cutting edge is pressed against the nasal wall of the antrum as far forward in the lower meatus as possible by crowding the shank of the trephine against the flexible cartilaginous septum, which is bent over by it towards the other nostril, the trephine thus being made to cross the naris of the operation at an angle of about 45 degrees. The power is then turned on and in the usual case instantly and painlessly a smooth oval hole is made in the anteral wall large enough to permit the use of a large Eustachian catheter for washing out the antrum with plenty of room to permit the escape of clots beside the catheter. In distinction to this the trocar cannula usually employed cause great pain in making the puncture, create a stellate fracture and often fail to penetrate at all where the bone is thick in the lower meatus. In addition the cannula tightly fills the opening made, so that there is no room for a counter current beside it,

and none is possible where the natural opening of the antrum is closed by swelling or polypi.

If the diagnostic opening with the trephine brings pus from the antrum, the opening in *mild* cases, is merely enlarged underneath the lower turbinate with the trephine and bur, without cutting away any of the turbinate. This leaves hidden under the turbinate a large aperture, which is apt to close, but usually not before the suppuration has ceased. In most cases, however, in order to get a surely permanent opening, the anterior one-third to one-half of the inferior turbinate has to be resected by Dr. Freer's flap resection, which preserves the mucosa of the convexity of the turbinate, which curls into the aperture in the antrum, giving it a smooth edge above. After the turbinate resection the diagnostic trephine opening is enlarged with the bur and cutting forceps until it takes in all of the lower meatus down to the nasal floor. The mucosa of the antrum's interior is left intact and is *not curetted*. It is usually normal or capable of becoming so, if left alone. The operation leaves no denuded surfaces to granulate for the bone opening always exceeds the opening in the mucosa, which gets out of the way of the bur. In fact, it is due to concentric contraction of the mucosal opening that the aperture always loses half of its area after healing, and, if not made large enough, it sometimes closes up again by a membranous diaphragm. For this reason redundant mucosa must be cut away in the operation. The complete operation may be done under general or local anesthesia, the latter usually being employed.

Dr. Joseph C. Beck said that first he would like to object to Dr. Robertson's reference. He never said that the operation could not be done. He said he would not want to do it in that manner.

Dr. Beck enjoyed Dr. Brophy's paper immensely because it agreed with many of his own sentiments regarding the treatment of suppuration of the antrum. The one criticism that he would like to make was that not enough attention was paid to the pathologic lesions that we deal with. It makes a big difference as to the change in the tissues in a chronic suppuration of the antrum. A case may be chronic, yet, as suggested by Dr. Freer, if well opened up in the inferior meatus, will get well, because we drain and ventilate the cavity—especially is this the case if it is not associated with infections of the other sinuses.

A chronic osteitis associated with chronic suppuration of the antrum will not get well by an opening in the inferior meatus, no matter if it is as big as a house. It is a pathological process, that must be eradicated by thorough curettage and obliteration of the entire cavity. This has been his practice in cases that will not get well by an opening in the inferior meatus.

The speaker asked Dr. Brophy what took place in that cavity when he had scraped the bone and put the plug in? Certainly not mucous membrane. It must be a scar membrane. A closed cavity lined

with scar will suppurate. He said this from experience, because he has reopened these cavities.

His method of dealing with chronic suppurations, after trying simple operations, is to obliterate the cavity as nearly as possible. He has now sixteen cases on record, that have been treated and cured by this operation.

Dr. George E. Shambaugh, in speaking of the etiology of antrum infection, stated that before the development of rhinology these cases were handled almost exclusively by the dentists, and the conclusions expressed by Dr. Brophy that most of these cases are caused by dental infection corresponds with the view that was generally accepted before the advent of rhinology. Most of the cases that come under the observation of a dentist no doubt have dental origin; the dentists are consulted because of the teeth, or the patients come to the dentist because of an acute pain in the side of the face following distinctly an alveolar abscess of which the patient has been aware. The rhinologist today sees many more cases than go to the dentist; he sees not only the cases of dental origin, but those that have their origin from infection of the nose. The rhinologist has found that a relatively small percentage of cases of antrum infection have a dental origin.

The speaker in listening to the discussions was surprised that in the suggestions regarding treatment nothing had been said regarding the easiest and very often the most efficient way of making an opening into the antrum. This is by breaking through the thinnest portion of the antral wall, namely, the so-called nasal fontanelle, which lies in the middle meatus. Here there are areas of considerable size where the antrum is separated from the nose simply by the mucous membrane coverings. In an exploratory puncture of the antrum for irrigation, in making a diagnosis, this is by far the easiest and best way for entering the antrum. In cases of acute empyema of the antrum it is very unusual that one has to resort even to any artificial opening. In treating chronic cases of antrum empyema Dr. Shambaugh has been able to cure a great many cases by making a large opening in the middle meatus of the nose. In his opinion this is very often the method of choice in undertaking the cure of a chronic antrum infection. There are cases, however, where it is impossible to get a satisfactory result by working through the middle meatus. In cases where a more radical procedure is called for, the Denker operation gives us our best chance for eradicating the trouble.

Dr. J. R. Fletcher was rather surprised that nothing had been said of the bony cysts which have been shown in various works to be sometimes so enormous that they almost entirely fill the space which should be occupied by the antrum of Highmore. He is rather of the opinion that they are much more numerous than is generally thought. If we enter habitually through the canine fossa, we will now and then be dealing with a suppurating dentigerous cyst,

and have no communication except in very rare instances, when the communication is formed by the death of the bone posteriorly. He would think that dentists would have more opportunity to find these than rhinologists, but perhaps rhinologists do not find them as often as they might because they do not look for them and keep them in mind. The speaker read a paper on this subject before the Society three or four years ago, which some of the members might remember.

He was further very much pleased to hear Dr. Shambaugh call attention to the route of the middle meatus. That is certainly the easiest point to make your entry. Oftentimes, instead of going through the elaborate procedure mentioned by Dr. Brophy to find if there is pus in the antrum, it is advisable to have an easier route, and the one spoken of by Dr. Shambaugh is the easy route. Quite a large percentage of cases are cured when we go between the middle and the inferior turbinals. He is not of the opinion that the antrum must be on the level of the inferior wall of the nose, in order to give good drainage. The head is not fixed—it is decidedly movable.

Dr. J. Holinger thought the members were dealing with a borderline subject, and of course each one finds what he is looking for on his side of the fence. Each one may have his justification. But he would call attention to the patient exhibited by Dr. Brophy. He had treated her for many months through that opening. Even though the suppuration stops temporarily, did Dr. Brophy think that he had a normal mucous membrane in there? Did Dr. Brophy make a microscopic examination of the membrane? After all the manipulations, it is impossible that there can be a normal lining of an antrum of Highmore. Sooner or later, if he allows the opening to close, the cavity will suppurate again. This is the clinical experience of rhinologists of the last twenty years, and is supported by microscopical findings.

After scraping out the mucous membrane you have nothing else to put in its place except granulations. You leave a granulating and therefore suppurating surface. Denker does not destroy any mucous membrane of the antrum except the floor, which he covers afterwards with the mucous membrane of the lateral wall between the antrum and the nose. In a week the patients are cured, and safe from relapses. Dr. Brophy treats his patients from six to nine months. The speaker's patients would not stand for that, and he would not expect it of them, so long as he can cure them in a week. If Dr. Holinger sees that after three or four washings of the antrum with boric acid solution he cannot make headway, that the discharge and odor do not diminish, he tells them to go to a hospital, where a radical operation is performed. He has never seen a suppuration recur, but even if that should happen the patient can easily wash out the antrum himself through this permanent opening. He has never seen

any trouble after a Denker operation, but he has seen a lot of it after other operations.

Dr. Otis H. Maclay said the essayist had spoken of doing the work with the least manipulation and the least sacrificing of tissue, and he thought that everyone agreed with him in that, and it is only a matter of where to place this. It seemed to him that, on the basis that ventilation plays equally an important factor in the work as drainage, we do not need to get a great big opening in order to cure these cases. With a fairly good opening in the middle meatus, we run good chance of curing many of the cases, and he is of the opinion that we ought to do that first in all cases—at least give them a chance, and, if necessary, further work can be done, but the middle meatus route should be adopted first.

Dr. John A. Cavanaugh wished to call the attention of the members to a few specimens of the antrum which he has, especially as Dr. Brophy mentioned entering the antrum through the canine fossa. He has two or three specimens where the antra were very small, and in such cases this operation is absolutely impossible. The speaker had a case a year ago in which a dentist had gone through the canine fossa, thinking he was in the antrum. At first Dr. Cavanaugh thought so, too; but, the trouble persisting, he passed a probe into the opening through the canine fossa, and, looking into the nose, found that the probe passed into the lower meatus of the nasal cavity. The opening was not into the antral cavity at all.

Dr. Cavanaugh believes that all the accessory cavities that are found in the cheek bone, otherwise than the one which opens from the infundibulum, are not antral cavities, because the antrum itself develops from the middle meatus, directly from the lower part of the infundibulum. The maxillary process of the inferior turbinate forms the inner wall of the antrum, so no matter how small the antrum is, if a needle be passed underneath the inferior turbinal, about three-fourths of an inch, from the anterior end at its attachment to the lateral wall, it will always pass directly into the antral cavity, regardless of the size.

Another thing: In going through the alveolar process he has found that just anterior to the molar ridge, is the thinnest part of the anterior wall of the antral cavity, and in passing a bur or a needle upward in the direction of the suppraorbital foramen it will always pass into the antral cavity.

Dr. Brophy, in closing the discussion, thanked the members of the Society for jumping on him so lightly. However, he had this consolation that while the speakers might not agree with him, they had also failed to agree with one another.

He was greatly pleased with Dr. Robertson's remarks, and was pleased to hear that he does not destroy as much of the bony wall between the antrum and the nose as some of the others. He saves the mucous membrane and preserves the integrity of the antral cavity and of the nasal cavity. He en-

deavors to restore, in other words, what he takes away. The surgeon who has the highest aims must keep in mind the importance of preserving the anatomy of the parts upon which he operates.

Nature made this cavity for a purpose. It provides a natural opening through which air and fluids may pass. It becomes our duty as surgeons to endeavor to reestablish that opening, if by some cause it has been closed, and enable Nature to perform her functions normally. The criticism he would offer on Dr. Robertson's question is that sometimes the membrane does not reunite, and then there would be a calamity on his hands, an unnatural opening through which dust and dirt and fluids and waste and incrustations might develop. Nature provided the ostium maxillare and put it in a place where dust and dirt cannot be readily admitted, above the inferior turbinate bone, and it should be preserved or reestablished if for any reason it has been closed.

Dr. Robertson said that usually you find carious teeth where there is disease of the antrum. The speaker wished to ask, in all fairness, if the members did not think that sometimes they overlooked a tooth with a dead pulp, which was absolutely sound so far as external appearances indicated, and that the infection may have arisen from this source? He personally had no doubt of it.

How does the rhinologist know that these teeth do not contain dead pulps when the expert dentist, with all the facilities at his command, finds it difficult to determine whether the pulp in a tooth is living or dead. Part of the pulp may be living and part of it dead. Such a condition may be misleading to the observer.

It is true that a large opening through the naso-antral wall will admit of good drainage so that the constantly-forming pus at the root ends of teeth may easily escape, and inasmuch as it is not retained in the cavity the patient is not subjected to great discomfort.

Medical colleges have not taught diseases of the teeth. Medicine is said to be the healing art in all its branches. It is not any such a thing, except in part of its branches. Some few colleges are teaching dental pathology—others do not teach it at all.

Regarding Dr. Freer—there is some hope for him, because he has given up extensive cutting out of the naso-antral wall. The speaker would have been glad to give a fellow-countryman the credit for the operation, if he had known his name. He is glad that Dr. Freer uses the dental engine.

Some speaker referred to the "elaborate way" he had in opening the antrum and the more simple way of going in through the nose and around the corner. Who can do it quicker than the speaker, with this engine? You don't need to make an incision. The thinnest part of the wall is just above the canine fossa; you put the instrument in place and in a second the antrum is opened; introduce a small-pointed syringe and flush it out, and if there is any pus in there, you know it.

Dr. Beck asked what you will find in an antrum that you open and curet? In many you find nothing but pus—no membranes at all. The bone is denuded absolutely. What will happen to that kind of an antrum?

Dr. Shambaugh's plan of opening through the middle meatus is probably a most excellent one. The speaker has never tried it because he thinks he has a better way.

Dr. Fletcher spoke of dentigerous cysts and their involvement of this cavity, and of the elaborate care that the speaker pursued in opening the antrum, which is positively the quickest way. Dentigerous cysts do involve the antrum, but Dr. Brophy does not regard them as the cause of empyema, except in rare cases.

Dr. Holinger spoke of normal membrane. He does not agree with anybody else who spoke. He believes in the Denker operation.

In these old cases that have been running on for a long time, the speaker does not generally find any membrane on opening them—he finds nothing but bone denuded of all tissues.

Dr. Cavanaugh spoke of the importance of getting into the most difficult part of the antrum operation—getting into the anterior cavity. That is why Dr. Brophy opens it as he does. He can see every part of the cavity. If it is diseased anywhere, if fungi are present or exuberant granulations anywhere, he can take them out through this opening very easily.

Nothing had been said about the numerous cavities into which the antrum is sometimes divided, nor how to wash out these cavities. What better way is there of getting access to these cavities and breaking down the wall than by the methods described by the speaker? Many an antrum has been opened and treated, and then another cavity of the same antrum was filled with pus and not treated at all. What we want is to get out all the septa of bone, which will enable us to determine that we have freed the parts from infection.

Dr. Brophy then gave Dr. Maclay, the secretary, a note from Dr. Homer M. Thomas, who was to have been present to discuss his paper, which read as follows:

"Dr. Homer Thomas is unable to be at the meeting tonight, but wishes you to know that he heartily endorses your views and the position you have taken, and with you believes the only way to properly open the antrum is through the dental arch. He would be glad to have you use his name as expressing this opinion."

GALLATIN COUNTY.

Gallatin County Medical Society held its annual outing and fish fry at Round Pond, one of the beautiful lakes near Shawneetown, Wednesday, July 1, 1914.

This meeting will long be remembered as the greatest and most enjoyable in the history of the society.

An invitation had been extended to the family of

each physician to be at this meeting. The wives, children and some sweethearts came with well-filled baskets of good things suitable for the occasion.

Plenty of fish had been provided and Ben Ellis, a colored chef, had been engaged to fry the fish, make the coffee and see that everyone had plenty. You can't beat Ben when it comes to frying fish and making those about him feel jolly. When Ben calls "Dinner Time" you may be sure there is something doing. "Dinner Time" came and the long table was heaped with lots of good things besides fish, and how that bunch did eat. Too much for one sitting, so it was decided to prolong the meeting until after supper.

The day was spent in boating, bathing, fishing (fishing only), eating and social conversation.

After dinner Dr. J. A. Womack, vice-president, Dr. J. W. Bowling, president, being absent, called the meeting to order, and subjects demanding present consideration were discussed.

A committee was appointed to draft resolutions opposing the Harrison Anti-Narcotic Bill. Resolutions drafted and unanimously adopted.

All present enjoyed this meeting, but there was a feeling of sadness among the physicians because of the recent death of one of our most active members, Dr. Paul Sherman of Shawneetown, ex-president of this society.

Dr. Sherman seldom missed a meeting of the society, and then only for good cause. Proper resolutions were adopted and presented to our county papers and the ILLINOIS MEDICAL JOURNAL for publication.

Time passed quickly and "Supper Time" from Ben brought all to the table again, where ample justice was done to fish and other good things.

The annual outing and fish fry of this society will be held the first Wednesday in July of each year.

Our society is in good condition, our meetings are well attended and very profitable.

The next regular meeting will be held at New Haven, Wednesday, September 9, 1914.

ALONZO B. CAPEL, Secretary.

The following resolution was adopted by the Gallatin County Medical Society:

WHEREAS, The Supreme Ruler of the Universe has seen fit in His infinite wisdom to remove from our midst to the higher councils above Dr. Paul Sherman, of Shawneetown, Illinois; and

WHEREAS, In the death of Dr. Sherman the Gallatin County Medical Society has lost one of its most useful and active members; the county one of its best physicians; the county and state one of its best and useful citizens, and his wife and son, who are most deeply concerned of us all, a loving husband and father; therefore be it

Resolved, That while we deeply deplore the death of such a useful man, life being cut off at the meridian of its existence and the sun of life sinking beneath the western horizon just in its prime and use-

fulness, yet, we humbly bow to the will of Him who doeth all things well. Be it further

Resolved, That a copy of these resolutions be spread on the records of our County Society, and a copy furnished the family of the deceased, a copy furnished the county papers of this county and a copy sent to the ILLINOIS MEDICAL JOURNAL for publication.

I. A. FOSTER,
W. H. RILEY,
J. A. WOMACK,
Committee.

HANCOCK COUNTY.

The members of the Hancock County Medical Society and their wives had a delightful outing on Monday, July 6th, when they went by automobile to Hamilton, had luncheon at the Lake View Club, after which the ladies spent the afternoon in social chat. The men held a short business session. Dr. Jenkins, who was a delegate to the State Medical meeting at Decatur, made a report. Drs. Scott and Edwards reported interesting cases and Dr. Casburn, who is leaving soon for Mississippi, gave an interesting talk about the "Hancock County Medical Society Past and Present."

The society was organized in 1850 and reorganized under the state plan in 1903. Dr. Casburn was secretary for years.

Those present were Dr. and Mrs. Jenkins, Dr. and Mrs. Blender, Dr. and Mrs. Parr, Dr. and Mrs. Frazier, Dr. and Mrs. Ferris, Dr. and Mrs. Pumphrey, Dr. and Mrs. Scott, and Dr. and Mrs. Casburn of Carthage, Dr. and Mrs. Taylor of Hamilton, Dr. and Miss Haggett of Nauvoo and Dr. Edwards of Warsaw.

JEFFERSON COUNTY.

The Jefferson County Medical Society met June 18, at the home of Dr. and Mrs. T. A. Clark in Dix, Ill. This meeting proved a most delightful affair owing to the delightful surroundings of the Clark home and the excellent preparations that had been made for the entertainment of the physician.

Dr. J. T. Whitlock presented a very interesting and able paper on "The Business Side of the Practice of Medicine." This paper was full of helpful suggestions and was followed by an extensive discussion. After this a splendid lunch was served.

The following physicians were present: Todd P. Ward, T. A. Clark, C. W. Hall, J. T. Whitlock, Thos. Williamson, Milton Freeman, C. J. Poole, O. A. Suttle, R. R. Smith, Walter Watson, W. R. Ross, J. H. Newton, A. M. Frost, L. C. Morgan, Andy Hall, A. D. Harper, and J. C. Hall.

Our society meets once every month and the programs, interest, and attendance have been excellent every month.

ANDY HALL, M. D., Secretary.

COLES COUNTY.

The Coles County Medical Society met at Charleston, Thursday, July 7, 1914. There was a good attendance of members from all parts of the county, and several homeopathic practitioners who are not members were present. It was decided to hold bi-monthly meetings in the future, instead of quarterly as heretofore. There was a discussion of a revision of the Coles County fee bill, which was made out ten years ago. Many of the members were not in favor of any radical changes in the charges. The matter was placed in the hands of a committee which will report at the September meeting.

G. H. TRANSEAU, Secretary.

MADISON COUNTY.

The Madison County Medical Society met at the club house of the Country Club, Rock Springs Park, Alton, on the afternoon of July 3, 1914, with President E. A. Cook in the chair.

Members present: Drs. Lemen, W. H. C. Smith, J. H. Fiegenbaum, Cook, Burroughs, Barnsback, Hastings, Jones, E. F. Fischer, Hirsch, Range, G. K. Worden, Binney, Johnson, Theodoroff, Kiser Sims, Schreifers, J. W. Scott, Joesting, H. W. Davis, McKinney, Shaff, Pfeifferberger, Waldo Fischer, M. W. Harrison, Haliburton, Kessinger, Beard, Luster, Wedig, Darner, Robinson, Taphorn, Duggan, Siegel, Wilkinson, and E. W. Fiegenbaum. Visitors: Capt. H. C. Pillsbury, of Jefferson Barracks, Mo.; Drs. M. A. Bliss, O. H. Brown, Walter Baumgarten, and F. M. Barnes, Jr., of St. Louis; Drs. VanHorne, Gledhill and Hunt, of Jerseyville; Dr. R. A. Fitzgerald, of Alton, and Mr. J. L. Nix, of Homer, Pa.

On motion of Dr. Lemen the courtesies of the society were extended to all of the visitors. After a very short business session, the speaker of the day, Capt. Henry C. Pillsbury, of the Medical Corps of the U. S. Army, was introduced and read a paper on "Sanitation in the U. S. Army," which was received and discussed with remarkable interest. The paper touched upon the entire field of sanitation as enforced in every army post in this and foreign countries. It took up anti-typhoid vaccination and by statistics proved its wonderful results. The extermination of mosquitoes by drainage, screening and oiling and the suppression of the fly, was thoroughly demonstrated. The speaker said that the excellent results in the Canal Zone were due to up-to-date sanitary laws strictly enforced. He particularly dwelt upon venereal prophylaxis and said that since its adoption there had been only one per cent of failure in all exposures, if applied within eight hours. The speaker was given a vote of thanks, and a motion to have the paper published in the ILLINOIS MEDICAL JOURNAL was carried.

The society then adjourned to the New Alton Mineral Springs Hotel, where a complimentary banquet was served by the hotel management, to all doctors in attendance. A detailed account of this elegant function can not be given. Suffice it to say that it will

be many a day before the excellence of the feast, the good-fellowship exhibited and the general enjoyment of the occasion, will be surpassed. After a vote of thanks and appreciation to the hotel management, the meeting adjourned to meet on the first Friday in August, at the Tent Colony of Dr. M. W. Harrison, in Collinsville.

E. W. FIEGENBAUM, Secretary.

McHENRY COUNTY.

The society held its regular meeting in the Hotel Woodstock, April 30, 1914. The meeting was called to order at 10:30 a. m. by the president, Dr. H. D. Hull. Present were Drs. Joseph L. Miller of Chicago; Nason, Pillinger, Hull, Maxon, Peck, Anderson, Windmueller, West, Baccus, Francis, Thon and Smith.

The minutes of the last meeting were read and approved as read. The secretary read a letter from the secretary of the Illinois Association for the Conservation of Vision and Prevention of Blindness, asking this society to aid in holding a public lecture in Woodstock as a part of their campaign of education. It was moved and seconded that the physicians of Woodstock constitute a committee of arrangements to handle the matter as they see fit. Motion carried. The removal of Dr. J. I. Wernham, our delegate, having created a vacancy in this office, the election of a member to fill it was taken up. Dr. E. Windmueller of Woodstock was nominated and unanimously elected to fill this office for the period of two years.

Dr. Miller was then introduced by the president and gave us an interesting paper on "The Relation of Focal Infections to Rheumatism," the following being a general outline of the talk:

1. Sources of infection: (1) *Tonsils* are the most important sources; many tonsils on exterior may appear harmless, but down in crypts or behind anterior pillars may contain pus, cultures of which generally give streptococci, and these injected into animals set up an arthritis. (2) The *teeth*—(a) Especially *filled* teeth, may contain infection about the roots, and because the nerve of the tooth has been killed, the patient be unaware of trouble; granulation tissue is produced and bone absorption goes on. These can be demonstrated by x-ray films, several of which were shown. (b) *pyorrhea*, especially if extensive. (3) The *nasal accessory* sinuses must be kept in mind and looked after if necessary. (4) The *prostatic* infections, usually due to the gonococcus, but streptococcus may also be present as a secondary infection. (5) The *gall-bladder*. (6) The *urinary tract* kidneys and bladder. (7) The *pharynx*, an acute pharyngitis may, by involving a large mucous surface, allow absorption of enough bacteria to cause joint infections. (8) The *intestinal tract* may play a part in some cases.

2. What can be done? Best results obtained if the primary focus can be found and removed. Sometimes a large, infected joint itself becomes a primary focus. If possible, get an autogenous vaccine from the primary focus: Give in dose of one, two or

three hundred million bacteria every seven to eight days. In case not possible to remove tonsil get a vaccine from the material in the crypts and use that. In all cases of acute rheumatism, after the attack subsides, the tonsils should be removed—this means *entire* removal—mere cutting off the top of the tonsil may cause the crypts to heal over on the surface, sealing the infectious material and make matters worse than before. The more conservative men are removing tonsils, even in patients with a high blood pressure of eg. 190 or 195 mm. In chronic cases examine tonsils carefully; if filled teeth, have x-ray films taken; if not possible to locate primary focus and get vaccine from that, a vaccine prepared from streptococci obtained from a similar case will often be found useful. Regular stock vaccines are not generally useful, as difficult to get the same strain of organism. Muscular rheumatism and neuritis cases are often due to the same causes as above. If an animal be injected with streptococci and a joint be kept cold, an arthritis is more likely to develop in this joint than in the others.

The paper was thoroughly discussed and many interesting points brought out.

It was the desire of those present that we hold the next meeting at Crystal Lake and make it the annual outing meeting. Shortly before noon adjournment was taken to the dining room.

A. B. SMITH, Secretary.

The society held its fifth annual outing meeting at Leonard's Hotel, Crystal Lake, June 18, 1914. The meeting was called to order at 10:30 a. m. by the president, Dr. H. D. Hull. Members present were Drs. Goddard, Johnson, Peck, Seelye, Nason, Richardson, Wernham, Hull, Freeman, Pflueger, Guy, Windmueller, West, Francis, Baccus and Smith. Visitors were Dr. Foley of Jacksonville and Drs. Mann, Schmidt, Campbell and Bridge of Elgin.

The minutes of the last meeting were read and approved as read. The annual report of the secretary-treasurer was read; motions made and carried that it be approved and placed on file, and that a vote of thanks be extended to the secretary for his work the past year.

The following resolution was read: Resolved, That the members of the McHenry County Medical Society condemn the practice of doing contract work for any of the so-called fraternal or sick benefit societies or for factories at less than the regular rates. Proof of the violation of this to be followed by expulsion from this county society. Motion made and carried that this resolution be adopted by the society.

Motion made and carried that Dr. Goddard of Harvard be requested to give a paper at the next meeting.

Dr. Windmueller gave a report of the meeting of the Illinois Medical Society held at Decatur last month. Dr. West then gave us an interesting paper on "Parotitis: Some Observations on an Unusual Epidemic," the following being an outline of the paper:

(1) Unusual features of this epidemic: (a) Ex-

treme contagiousness, 75 per cent of the school children and 15 per cent of the employes of the Oliver Typewriter Company contracted the disease; this was unusual, as it is not considered a highly contagious disease. (b) Severity of symptoms. This epidemic was characterized by the number of cases presenting marked symptoms. These were caused by the extreme toxemia and were pronounced in cases presenting complications. This was especially true in cases in which orchitis developed; chills, fever and sweats being pronounced, some cases having a temperature up to 104 and 105 for several days. (c) Complications are usually considered rare, but in this epidemic were common and varied; in several cases swelling of the testicle occurred simultaneously with that of the parotid; 75 per cent of the adult males developed orchitis. This metastasis, however, seemed to bear no direct relation to the amount of parotid involvement, occurring just as frequently in those with a small swelling as in those with a large amount. A severe abdominal crisis occurred in one case. Nausea and bilious vomiting were rather common and usually came as the swelling was subsiding and appeared to be due to the absorption of inflammatory products.

(2) Treatment consisted of free elimination; applications of heat and cold to the swollen glands, the former seeming to give more relief in the early stages; in the extremely toxic cases normal salt solution per rectum proved very effective.

(3) Case reports: Several of the more interesting cases were reported in detail.

The paper brought forth a pretty general discussion, which proved a benefit to all.

The following officers were unanimously elected for the ensuing year: President, Dr. A. B. Smith of Woodstock; vice-president, Dr. C. C. Peck of Harvard; secretary-treasurer, Dr. N. L. Seelye of Harvard; member of board of censors, Dr. G. H. Pflueger of Crystal Lake, making the order of this board as follows: Drs. Brown, Baccus and Pflueger.

Next meeting place announced as Harvard at a date to be arranged by the secretary.

After adjournment a social half hour was spent on the lake shore and when the dinner call came it was responded to by about forty physicians and members of their families.

A. B. SMITH, Secretary.

ST. CLAIR COUNTY.

The St. Clair County Medical Society met at Pritter's Park on July 2, with all officers present and the following members: Dr. Ginsbaum and wife, Drs. Triffle, Fairbrother, Evans, Berry, Massey, Wyatt, Sr., Raab, Auten, Spannagel, Otrich, Mueller, Hansing, Gunn, Sr. and Jr., Miss Parker, Renner, Marxer, Dew, Dewey, Wilhelmy, Ronniser, Portuondo, Higgins, Steele, Lilley, Bechtold, Rayhill, Hilgard, Fulgam.

The following scientific program was rendered and

the discussion ought to show the authors that their efforts were appreciated:

1. "Traumatic Injuries to the Brain and Cord," Dr. Ronniser, St. Louis.

2. "Cystoscopic and Microscopic Diagnosis, Genito Urinary Diseases," Dr. W. Wilhelmy, East St. Louis.

Dr. Wilhelmy showed a specimen, a piece of lead pencil two inches long, which he had removed from a bladder.

3. "Radiopathy in Diagnosis of Genito Urinary Diseases," Dr. C. P. Renner, Belleville.

Dr. Renner also had lantern slides, but was unable to use them, there being no facilities in the park. He promised, however, to show them at some other time. He also presented a specimen of an injured aorta, which had been injured by a few No. 5 shots. The man lived about eight hours.

Dr. Lilley, president-elect of the Illinois State Medical Society, one of our oldest and most active members, was present and was congratulated by a resolution, which was unanimously carried. Dr. Lilly responded with a few remarks.

A motion to establish a bulletin after discussion was lost. A motion to adjourn to the "Chicken Dinner" was carried by a large majority.

AUGUST BECHTOLD, President.

Personals

Dr. Wm. L. Ballenger, Chicago, who has been incapacitated with an infected foot, has resumed his office and hospital practice.

Dr. Ralph B. McCleary, Monmouth, is reported to be seriously ill.

Dr. Andrew M. Harvey is ill with typhoid fever at the West Suburban Hospital, Oak Park.

Dr. Edgar H. Little has been appointed postmaster of East St. Louis.

Dr. Arthur L. Hagler, Springfield, who was operated on at St. John's Hospital in that city, recently, is reported to be improving.

Dr. George P. Gill, Rockford, was operated on for mastoiditis at the Wesley Hospital, Chicago, July 8.

Fire in the office of Dr. Alexander L. Blackwood, July 2, did damage amounting to \$2,000.

Dr. George L. Eyster, Rock Island, while working on his automobile, was severely burned by gasoline.

Dr. George H. Lee, Kankakee, is seriously ill with septicemia, due to an infected wound of the thumb.

News Notes

—The Illinois State Board of Health is making complimentary complement-fixation tests for gonorrhea for the indigent.

—The State Board of Health has completed a sanitary survey of the summer resorts of Illinois, finding conditions at some popular summering places of great danger to the health of patrons. Notices to correct conditions have been served. After reasonable time is given to comply with the notices, reinspections will be made. Information as to the sanitary status of the resorts will be available to the public about August 10.

—The completed survey of dairies contributing to the Springfield milk supply indicated very bad conditions in 75 per cent of the 108 dairies which scored less than 50 points.

—The State Board of Health has served notices on all health officials, railway and steamboat authorities, calling attention to the bubonic plague situation at New Orleans and urging a general campaign of rat extermination and cleaning up. The board inspectors visited all ports of entry on the Ohio, Mississippi, Wabash and Illinois rivers and secured the cooperation of the various city councils in this work.

Dr. Perry H. Wessel has been reappointed city physician of Moline.

Dr. Whedon W. Mercer, a member of the staff of the Peoria State Hospital, has been appointed assistant superintendent of the Anna State Hospital.

Dr. Nathan S. Davis, who was operated on at the Presbyterian Hospital for the removal of gall-stones, June 30, has made a good recovery and is convalescing at his home in Lake Forest.

Dr. Robert P. Preble had the honorary degree of M. A. conferred on him by the University of Michigan.

Dr. R. Carl Dienst, Aurora, has been appointed surgeon and laboratory physician to the Marconi Wireless Telegraph Company, with headquarters at Marshall, Cal.

At the completion of the twenty-fifth year of service of Dr. Otis Johnston on the staff of St. Mary's Hospital, Quincy, the sisters gave a dinner in honor of Dr. Johnston, July 2. A jubilee song was sung and poems in honor of the occasion were read, and many silver gifts were presented to Dr. Johnston.

Dr. C. O. Schlaack, ambulance surgeon of the Des Plaines Street Station, was injured in a collision between the ambulance and an automobile, June 21.

Dr. and Mrs. Louis Becker, Knoxville, Drs. Wm. L. Gray, Champaign, James S. Mason, Urbana, Isaac A. Abt and family, Willis O. Nance, Franklin H. Martin, Raymond W. McNealy, John B. Murphy, Charles Davison, Wm. L. Abbott, Truman W. Brophy, E. C. Dudley and daughter, Wm. Fuller and Mrs. Fuller, George T. Tristram, Jabez D. Hammond and sons, all of Chicago, have gone to Europe.

—The New Dispensary for Sick Children, Kewaunee, made possible by the efforts of the local women's club, was opened July 1 in the Lyle building on North Tremont Street.

—The new tuberculosis sanatorium for La Salle County is to be erected directly west of the men's ward of the infirmary, facing the park leading into the grounds. Work on the building, which is to cost about \$3,000, will be commenced immediately.

—On June 30, the state of Illinois purchased 1,054 acres of land near Dixon, for which \$216.40 per acre was paid. This will be the site of the state colony for epileptics, for which \$500,000 has been appropriated. The work of erection of the building will soon be inaugurated.

—The request of the Chicago Tuberculosis Institute that it be allowed to place educational exhibits in several of the social education schools, was granted at the meeting of the school management committee of the board of education, July 17, and the institute was requested to place exhibits in as many of the schools as it deemed profitable.

—A health center for an entire township, including the towns of La Salle, Peru and Oglesby, has been established at La Salle with a high school and social center. This enterprise has been undertaken by a public-spirited citizen of La Salle. Physicians, school nurses and sanitary police will be provided, school children will be inspected, and the milk-supply of the three communities will be under control. The social settlement will include people's institutions, with swimming-pools, libraries, reading-rooms, etc.

—Fresh air stations for sick babies have been established by the Elizabeth McCormick Memorial Fund at the Northwestern University Set-

tlement, Augusta and Robey streets, the Henry Booth House, 701 W. 14th Place, and at the House of Social Service, at 47th and Halsted streets. Dr. Frank W. Allin has charge of the medical staff of the tent system, and the nursing is under the charge of Mrs. M. Pearl Ringland of the Visiting Nurse Association. The tents are in close cooperation with the Health Department, Infant Welfare Society, Visiting Nurses, Tuberculosis Hospital and all forces working for the betterment of infant health in the city.

—Dr. L. J. Witkowski of Chicago was recently threatened by the friends of a patient who died under chloroform given to reduce a dislocation of the jaw. The doctor was provided with a police escort.

—Owing to the continually increasing amount of material of value, offering for publication in the *Annals of Surgery*, the publishers have found it necessary beginning with the July 1914 issue to enlarge the size of the page and also to somewhat reduce the size of type in which the original contributions have heretofore been printed. The enlarged size will also enable the publishers to make a better display of the illustrations, which are such an important feature of the *Annals* contributions.

Thirty years ago, when the first number of the *Annals of Surgery* appeared, the size and style then shown suited admirably. At that time a single number contained only 96 pages. They have continued to increase each year until now the average number of pages to an issue is 164.

The new form enables the publishers to give the reader more material and greater comfort while reading than it could have been possible for them to present in the former size.

The July issue has a choice collection of important articles of exceptional value to the general practitioner as well as the surgeon. It is a splendid example of the way this publication continues to set the pace in surgery.

—The American Roentgen Ray Society will meet in Cleveland at the Hotel Hollenden on September 9th to 12th inclusive, 1914. The program promises to be of unusual interest and value, and includes a paper by Dessauer, of Frankfort, on the subject of artificial production of gamma rays; Coolidge, the inventor of the Coolidge tube, Shearer and Duane will also

read papers. The subject of deep therapy and the production of the hard rays will be fully presented and discussed. The rest of the program will be taken up by a large number of papers on general subjects. The medical profession is cordially invited to attend these meetings.

—The Douglas Park Branch, Chicago Medical Society, passed the following resolutions:

WHEREAS, We are called upon to mourn the untimely death of our honored friend and fellow-practitioner, Dr. Harold H. Steere, suddenly called from life in the midst of its activities and in the prime of his career, at the hand of one whom he had endeavored to help,

BE IT RESOLVED, That the members of the Douglas Park Branch of the Chicago Medical Society extend to the sorrowing widow and children their deepest sympathy in this hour of trial;

That we deplore the loss of our associate and the sudden and tragic ending of a life of promise;

That we express our appreciation of his talents and abilities, his high professional standing and his many fine traits of character; and,

That a copy of these resolutions be transmitted to the bereaved family, to the Bulletin of the Chicago Medical Society and the ILLINOIS MEDICAL JOURNAL.

Committee

J. A. CLARK,

F. J. E. EHRMANN,

JAS. G. CARR.

—The campaign against the illegal sale of drugs in Chicago has involved numerous druggists, including one wholesale house and several physicians. No more contemptible business can be imagined than the sale of habit forming drugs to habitués. Physicians are naturally jealous of the professional prerogative of prescribing, but no sympathy will be wasted on those who fall foul of the law.

—The village board of Wilmette refused to grant a license to Dr. L. C. H. E. Zeigler, Chicago, to build a hospital in that village.

—The appellate division of the New York supreme court sustained the conviction of Willis Vernon Cole, a Christian Science healer, for practicing medicine without a license. Defense was made on the plea that Cole did not "charge"

for his services, but accepted fees offered him. He testified that his "practice" brought him an income of \$6,000 a year. Who wouldn't abuse the devil "like hell" for that?

—The trustees of the American Medicine Gold Medal Award announce that the medal for 1914 has been conferred upon Dr. George W. Crile of Cleveland, as the American physician who in their judgment has performed the most conspicuous and noteworthy service in the domain of medicine and surgery during the past year.

—The Robert Koch Society for the study of tuberculosis met Thursday, July 16, under the auspices of the Chicago Tuberculosis Institute at the City Club, Chicago. Sixty nurses and physicians listened to the following interesting program:

Subject: "Tuberculosis of Bones and Joints. The Present Status."

Speakers: Dr. Charles M. Jacobs, Etiology and Pathology.

Dr. John L. Porter, Non-Surgical Treatment.

Dr. Edwin W. Ryerson, Surgical Treatment.

Dr. John Ridlon opened the Discussion.

PUBLIC HEALTH.

HOT WEATHER AND DEATHS FROM DIARRHEAL DISEASES.

The accompanying table shows the relation between temperature and deaths from diarrheal diseases each month in 1913. It will be noted that the month of June, the first month with an average mean temperature above 70 F. (70.6 F.) showed an increase of only 25 per cent. in deaths over the preceding month. But July, with average temperature of 70 F. and fewer days with maxima above 85 F. than had June, showed an increase in deaths of 130 per cent. over June. August, with 0.7 F. drop in average mean temperature and fewer days of maxima above 85 F., recorded a still further increase in deaths over July of nearly 25 per cent.

The deaths in September remained above those of July in spite of a drop in average mean temperature of nearly 10 degrees and less than one-third as many days of maxima above 85 F. These figures confirm the usual experience that babies who survive high temperature in early summer succumb in greatly increased numbers to the

should overlook the fact that the "official" temperature with a high daily minimum and comparatively low night minimum is different from the conditions that exist in steamy, unventilated tenements crowded thickly in back lots where the high temperature is never relieved by friend Lake Breeze.

Schereschewsky's article on this subject in U. S. Public Health Reports, Dec. 5, 1913, quoted from German authorities to the effect that in many cases the indoor temperature in workmen's dwellings exceeded the outdoor summer temperature. In some cases the indoor temperature remained higher than the outdoor for over fourteen days continually and at one time was over 20 degrees higher. It is easy to understand that cooking, washing and ironing can easily cause this difference. Moreover, the increased humidity under such circumstances would add vastly to the depressing effect of the high temperature.

The cut in this Bulletin also shows graphically the relation between temperature and deaths from diarrheal diseases under two years of age during the summer of 1913. The death curve shows an initial rise about ten days after the high temperature in June and for the balance of the summer the two curves are fairly parallel.

HOT WEATHER AND DIARRHEAL DEATHS

1913—	Deaths	Aver. Mean Temp.	Days of Max. Temperature Above		
			80 F.	85 F.	90 F.
Jan.	145	29.3	0	0	0
Feb.	143	24.8	0	0	0
March	204	35.2	0	0	0
April	176	48.8	0	0	0
May	164	57.6	3	0	0
June	206	70.6	15	12	7
July	474	75	19	10	7
August	591	74.3	14	9	4
Sept.	511	65.4	6	3	3
Oct.	264	53.5	1	0	0
Nov.	169	47.2	0	0	0
Dec.	167	37.4	0	0	0

Total.....3,214

Av. Mon..... 268

From Bulletin Chicago Department of Health.

Marriage

DREXEL LOWRY DAWSON, M. D., to Miss Lula Sinclair, both of Chicago, recently.

MORRIS FISHBEIN, M. D., Chicago, to Miss Anna Mantel of Indianapolis, July 7.

ROSS WILLIAM GRISWOLD, M. D., to Miss Camilla Seymour, both of Litchfield, Ill., May 27.

FRANKLIN EUGENE HAGIE, M. D., Elizabeth, Ill., to Miss Nellie Wells Rae of Chicago, June 30.

THOMAS HAROLD REAGAN, M. D., Canton, Ill., to Miss Bertha Rhenstrom, in Chicago, June 18.

DAVID HENRY WHERRITT, M. D., Chicago, to Miss Elizabeth Griffith of New Orleans, June 23.

PAUL HENRY ANTHONY, M. D., to Miss Mary Wendolyn Fitzgerald of Chicago, June 30, 1914.

Deaths

WILLIAM WAYLAND BONNELL (license, Illinois, years of practice, 1878); died recently at his home in Astoria, Ill.

HARRY H. CARNES, M. D. State University of Iowa College of Homeopathic Medicine, Iowa City, 1888; of Champaign, Ill.; died in a hospital in Peoria, Ill., June 8, from disease of the liver, aged 54.

ALBERT S. CLARKE, M. D. New York University, New York City, 1848; died at his home in Bushnell, Ill., May 13, from senile debility, aged 90.

L. W. CLARK (license, years of practice, Illinois); for many years a resident of Rushville, Ill.; died in Cartersville, Mo., May 7, from acute gastritis, aged 72.

ARTHUR HURTADO DE MENDOZA, M. D. Dearborn Medical College, Chicago, 1905; of Piper City, Ill.; died suddenly from cerebral hemorrhage while making a professional call near La Hogue, Ill., June 12, aged 50.

PAUL SHERMAN, M. D. St. Louis College of Physicians and Surgeons, 1898; a Fellow of the American Medical Association; and an inspector for the Illinois State Board of Health; died at his home in Shawneetown, Ill., June 19, from nephritis, aged 38.

HAROLD HAINES STEERE, M. D. Hering Medical College, Chicago, 1903; College of Phy-

sicians and Surgeons, 1908; a member of the Illinois State Medical Society; was shot by a patient in his office in Chicago, July 13, and died a few hours later at St. Anthony's Hospital, aged 40.

Book Notices

MODERN MEDICINE. ITS THEORY AND PRACTICE. In Original Contributions by American and Foreign Authors. Edited by Sir William Osler, Bart., M. D., F. R. S., Regius Professor of Medicine in Oxford University, England; Honorary Professor of Medicine in Johns Hopkins University, Baltimore; formerly Professor of Clinical Medicine in the University of Pennsylvania, Philadelphia, and in McGill University, Montreal; and Thomas McCrae, M. D., Professor of Medicine in the Jefferson Medical College, Philadelphia; Fellow of the Royal College of Physicians, London; formerly Associate Professor of Medicine in Johns Hopkins University, Baltimore. In five octavo volumes of about 1,000 pages each, illustrated. Volume III. Diseases of Digestive System—Diseases of the Urinary System. Just ready. Price per volume, cloth, \$5.00, net; half morocco, \$7.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

This third volume of Modern Medicine just off the presses of Lea & Febiger treats exclusively of the diseases of the digestive system and of the urinary system.

The various chapters are written by several of the best known medical men in this country and in England.

This "colossal work" edited by Osler and McCrae, is, we think, the best system of medicine of which we have knowledge. This volume is one of the most interesting of the set—dealing as it does with the organs of digestion and excretion.

No physician practicing medicine can afford to do without this especially valuable work.

THE PRACTICAL MEDICINE SERIES comprising ten volumes on the year's progress in medicine and surgery—under the general editorial charge of Charles L. Mix, A. M., M. D., professor of physical diagnosis in the Northwestern University medical school Robert T. Vaughn, Ph. B., M. D.

Volume I. General Medicine, edited by Frank Billings, M. S., M. D. Head of the medical department and Dean of the faculty of Rush Medical College, Chicago, and J. H. Salisbury, A. M., M. D., professor of medicine, Illinois Post-Graduate Medical School—Series 1914. Price \$1.50.

Volume II. General Surgery, edited by John B. Murphy, A. M., M. D., LL.D., F. R. C. S. England (Hon.), F. A. C. S., President of the International Surgical Congress, London; Professor of Surgery in the Northwestern University; Attending Surgeon and Chief of Staff of Mercy Hospital and Columbus Hospital, Consulting Surgeon to Cook County Hospital and Alexian Brothers Hospital, Chicago. Series 1914. Price \$2.00.

Volume III. The Eye, Ear, Nose and Throat, edited by Casey A. Wood, C. M., M. D., D. C. L. Albert H. Andrews, M. D., William L. Ballenger, M. D. Series 1914. Price \$1.50.

The Practical Medicine Series are too well known

to require comment. The first three volumes are just from the presses of "The Year Book" publishers and in each volume is discussed that which is new in the years' work of each of the specialties. The names of the editors of the several volumes are well-known and in each instance is a criterion of the contents of that volume. The volumes may be purchased singly—or the entire series of ten volumes may be had for ten dollars. Chicago—The Year Book Publishers, 327 S. LaSalle Street.

HOSPITAL OF THE PROTESTANT EPISCOPAL CHURCH IN PHILADELPHIA. Medical and Surgical Reports of the Episcopal Hospital, Volume II. Philadelphia Press of Wm. J. Dornan, 1914.

In addition to being a regular business statement of hospital affairs and conditions, the book contains many case records of many especially interesting cases coming under the service of the attending staff.

DISEASES OF THE RECTUM AND COLON AND THEIR SURGICAL TREATMENT. By Jerome M. Lynch, M. D., Professor of Rectal and Intestinal Surgery, New York Polyclinic; attending Surgeon, Cornell Dispensary; Fellow of the American Proctologic Society, New York Gastro-Enterological Society, etc. Octavo, 583 pages, with 228 engravings and 9 colored plates. Cloth, \$5.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

No branch of medicine or surgery is so grossly neglected as pathological conditions of the rectum. Perhaps no part of the human anatomy is so frequently in need of one or the other as the rectum.

This volume from Dr. Lynch will undoubtedly fill the need of many doctors, who want the latest literature on this subject. It seems to cover the entire field of rectal and colonic diseases and conditions.

The systematic arrangement, the fine quality of the illustrations, together with the excellent text, makes it a book that any physician may read with benefit—we heartily recommend it.

A HANDBOOK OF PSYCHOLOGY AND MENTAL DISEASE for use in training schools for attendants and nurses and in medical classes and as a ready reference for the practitioner, by C. B. Burr, M. D. Medical Director of Oak Grove Hospital (Flint, Mich.), for Mental and Nervous Diseases; formerly Medical Superintendent of the Eastern Michigan Asylum; member of the American Medico-Psychological Association, of the American Medical Association, of the American Neurological Association, of the Detroit Society of Neurology and Psychiatry; corresponding Fellow of the Detroit Academy of Medicine; Foreign Associate Member of Société Médico-Psychologique of Paris, etc. Fourth edition, revised and enlarged, with illustrations. Philadelphia, F. A. Davis Company, Publishers English Depot; Stanley Phillips, London, 1914.

A very useful little volume has come from the F. A. Davis Company in the third edition of Psychology and Mental Diseases, by C. B. Burr. In it are studied insanity in its various forms, the management of insane patients, and the nursing of those unfortunate. It treats all of the subjects briefly, but very clearly, and the general practitioner who can not, for lack of time go into these questions deeply, will find this book decidedly useful.

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Original Articles

THE ROENTGENOLOGY OF CHRONIC JOINT DISEASE.*

JAMES T. CASE, M. D.

BATTLE CREEK, MICHIGAN.

Roentgenologist and Assistant Surgeon to the Battle Creek (Mich.) Sanitarium; Roentgenologist to St. Luke's and Cook County Hospitals, Chicago; Lecturer on Roentgenology, Northwestern University Medical School, Chicago.

Roentgenology has come to be recognized as an indispensable aid in the diagnosis and prognosis of chronic joint lesions. The pathology of the whole group of chronic arthritis is still surrounded by such obscurity, the question of causation is still so unsettled, and especially in the case of deep-seated joints (the shoulder and the hip) the difficulties of determining the acute state of the parts affected are so many, that the aid of the roentgenographic examinations should be sought in every doubtful case. The roentgenographic examination does not overcome all the above mentioned difficulties, but many mistakes would be avoided and treatment could be carried out with greater confidence and success if the roentgen examination were made a part of the routine in the study of chronic joint diseases.

We should not lose sight of the fact that the x-ray examination affords only such evidence as can be based upon a qualitative estimation of variations in bone density, bone contour and variations from the normal anatomical approximation of parts forming the joints.

Out of the above limitation have grown the terms atrophic and hypertrophic arthritis, which are widely used by roentgenologists. With the exception of arthritis urica, tabetic arthropathy and possibly tuberculous arthritis, in each of

which the x-ray evidence is characteristic of the condition, it is rarely possible, from the roentgen findings alone, to arrive at a definite conclusion regarding the etiology of a given case of joint disease; but the x-ray findings frequently make possible a definite diagnosis of an otherwise obscure condition.

The various facts which may be learned from the roentgen examination may be listed as follows:

1. *Variations in the density of bone*, evidenced by rarefaction or condensation of bone, due, respectively, to absorption of mineral matter or to an extra-deposit of mineral matter or actual growth of new bone. It may be understood that, in general, acute bone disease is best recognized by increased transparency of the bone to the x-ray, and chronic disease by increased opacity of the bones to the x-ray. Strictly speaking, the roentgenologist does not see the joint proper, but draws his conclusions from the changes which have taken place in the ends of the bones which make up the joint. Hence the necessity of recognizing the changes attending acute or chronic bone disease.

It should be remembered that there are normal variations in the opacity of the bones to the x-ray. From birth until early adult life there is a general increase in the density of the bones. In old age and in thinner people, the shadows of the bones generally appear to be still denser; this is not due to an actual increase in the density of the bone, however, but to a decrease in the density of the surrounding tissues.

2. *Alteration of contour*. This alteration may be due to the production of osteophytes and exostoses, to subperiosteal swellings, to distortion of the bone accompanying softening and pressure, or to actual erosion of subchondral bone in the joint surface. Particularly in the study of the vertebral bodies, stereoscopic or lateral

*Read as part of a symposium on joint diseases before the sixty-fourth annual meeting of the Illinois State Medical Society, Decatur, May 19 to 21, 1914.

studies, especially the last-named, are required for accurate observation of bone distortions.

3. *Periarticular swelling.* In order to show periarticular enlargements it is necessary to observe certain principles of technic in the making of the roentgenogram. In other words, the quality of the ray used should be so adjusted that not only will bone detail be clearly shown, but also the surrounding soft tissues. For this purpose, a high tube is required. Such a tube will produce only a gray shadow, with want of contrast between bone and surrounding soft tissue, which, to the inexperienced observer, will appear as a poor picture; yet on close study such a shadow record will be found to contain detail of the greatest value in diagnosis. When tubes are too soft ("low") the image of the bones is very black, and although the contrast is marked and the picture is hence photographically "very clear," detail in the bone is conspicuous by its absence; one has secured a silhouette, not a roentgenogram. An individual not thoroughly conversant with the fact that the roentgenographic interpretation of joint disease is based upon the registration of variations in density is likely to prefer the roentgenogram as a black and white picture, whereas, as a matter of fact, contrast is less to be sought for than an accurate reproduction of the relative densities of the part under study.

A plate should be used of sufficient size to show not only the structure of the bones of the joint, but also the contour of the surrounding soft tissue; otherwise it will be impossible to make an estimate as to the amount of soft tissue swelling or fluid collections. On the other hand, the size of the roentgenogram is increased at the expense of fine definition. In general it is not wise to attempt to get both hips on one plate. It is better to diaphragm down upon smaller areas, making several plates, rather than suffer the unavoidable loss of tissue detail.

4. *Anatomical deviations, as luxations or subluxations.* An accurate knowledge of the anatomy of the joints is, of course, essential. Another essential is the adoption of a constant technic as to the relative position of the tube, joint and sensitized plate. Only by following a constant technic it is possible to make an accurate comparison of roentgenograms made at different times of various individuals. It is the

writer's custom to make stereoscopic roentgenograms of all shoulder and hip conditions. In the stereo-roentgenogram the true relation of the parts is accurately portrayed, with correction of shadow distortions. In fact, it is only the stereo-roentgenogram which can properly be called an x-ray "picture." The ordinary roentgenogram is only a record of shadows of varying density and disproportion varying with the relative distance of different parts of the joint from the plate.

5. *Narrowing of joint slits,* indicating atrophy or destruction of cartilage. Here again the adoption of a constant roentgenographic technic is absolutely essential and the making of stereo-roentgenograms is often very helpful. The narrowing of the slit may be asymmetrical, the destruction of the cartilage being more marked on one side than on the other.

6. *Bony ankylosis* may be discovered and an estimate made of the presence or absence of fibrous ankylosis. In the latter the interarticular space is represented by a clear line, while in bony ankylosis the interarticular space has disappeared and is replaced by a dark zone of about the same density as the neighboring bones with almost complete disappearance of the line of separation between the joint surfaces.

7. *Calcareous or uratic deposits.* Calcareous bodies may be evidence of lime deposits in joints or in ligaments, or the deposit may be in the bursae connected with the joint. Bursal ossification especially occurs in connection with periarthritis humeroseapularis. Sesamoid bones in the neighborhood of the joints, particularly the sesamoid which occurs in the long head of the gastrocnemius should not give rise to any confusion in these cases. The injection of oxygen into the joint may assist materially in the proper differentiation of calcareous masses in the neighborhood of the joints.

8. *Discharging sinuses,* particularly in connection with tuberculous joints, may be helpfully studied after the injection of Beck's paste.

As roentgenologists our reports must be based strictly upon the above findings, and we must differentiate carefully between a statement of the objective morphological findings and a statement as to the probable etiology or the probable clinical type (Barker). It is true we may often predict from the x-ray findings to which clinical

group a given case belongs. For instance, if the case falls under the x-ray classification of atrophic arthritis, it is, according to Barker, probably either a primary chronic progressive polyarthritis or an arthritis attending some infectious process. On the other hand, if a case falls under the x-ray classification of hypertrophic arthritis, it will suggest either a primary arthritis deformans which may be the benign process of advanced life or the result of infection or trauma, or a condition of neuropathic origin. In other words, the roentgen report should not be considered, either by its maker or its reader, as a diagnosis, but only a contribution toward the diagnosis, this contribution to be carefully collated with the various other findings, clinical and laboratory.

In order to make this paper a part of the symposium in which it is listed on the program, the writer has undertaken to discuss only those chronic joint infections which may be classed under the anatomical head of arthritis deformans, including cases of tuberculous, syphilitic, gonorrheal, gouty, traumatic, senile and metabolic origin. A special effort has been made to illustrate the preceding paper by Dr. Davis on the pathology of joint disease.

There will be described a series of changes in the joints which are found to a certain degree in senility and to a marked and varying degree in all of the conditions above mentioned. These joint changes all produce deforming lesions and with the exception of gout, lues and tuberculosis, can not, from the roentgenographic standpoint, be differentiated. The roentgenologist can only base his report upon the x-ray findings, as listed early in this paper. These findings should then be collated with other clinical evidences in the case.

Senile Arthritis. In the later years of life there are to be observed in roentgenograms of joints certain changes resembling the joint changes of arthritis deformans, which must be conceived as merely a symptom of old age. For instance, if in a patient of fifty years or more, the contour of the vertebral bodies runs out into thorns or slight sharp-angled protrusions, they are probably to be considered evidence only of senile changes. If, however, these protrusions are larger, or are found in younger people, these findings must then be considered as chronic arthritis

or incipient arthritis deformans. In the knee joint, for instance, the space in the joint shadow corresponds to the cartilage of the articulation. The normal width of this space is three to five millimeters. An accurate physiologic and pathologic limitation can not be set, but the diagnosis is aided by observing a narrowing of the articular space, particularly where the wearing out is irregular so that, for example, the articular cartilage of the knee joint is more worn out in the median half than in the lateral half, or vice versa. The recognition of this destruction of cartilage is simplified by the presence of osteophytes.

Arthritis Deformans. In primary arthritis deformans the following findings have been described:

1. Roundish, ball-like exostoses in and around the joints, which, in joints with wide synovial pockets, may develop into loose bodies.
2. Sharp demarcation of the bones of the joints with the formation of osteophytes.
3. Lateral deposits on the borders of the capsule and outside of the joint.

Spondylitis deformans is a particularly interesting variety of arthritis deformans. The changes here correspond to those described in the hypertrophic type of chronic arthritis. The bodies of the vertebrae are asymmetrical, the hypertrophic changes occurring in the corners of the bodies and less frequently in the transverse processes. There is such a constant relation between the occupation of the patient and the seat of the osteophyte formation in spondylitis deformans that some observers have considered it possible to detect a man's occupation from the study of a roentgenogram of his arthritic spine (Lane). Bridge formation and adhesions, deformity of the vertebral bodies and finally complete ankylosis are characteristic findings in advanced spondylitis.

Arthritis Urica. This condition is characterized by the deposit of urates in the tissue of the joint, primarily in the ligaments, but later in the articular cartilages. The uric acid salts consist of the combined urates of sodium, potassium, ammonium, magnesium and calcium and in some instances considerable accumulation of these combined salts takes place in the neighborhood of the joints. The urates of calcium and magnesium are the more dense, and it is found, prac-

tically, that in almost every case of gout the uratic deposits cast a perceptible shadow in the roentgenogram.

Bruce has called attention to characteristic uratic deposits (Bruce's nodes) which occur as very small osteomata, on the lateral border of the proximal phalanges of the hands. Often small, and sharply marked, they are seen as additions to the outline of the bone. Since they are less opaque than the bone, the contour of the bone can be made out through them. As above noted, they are best seen in the phalanges where the lateral ligaments are attached to the bone.

There is still much controversy over the deforming arthritis which occurs in connection with certain infections or metabolic errors. The experimental studies of Pemberton (*American Journal of the Medical Sciences*, December, 1913, to March, 1914) substantiate the findings of many observers that in a large number of cases of rheumatoid arthritis the disease is due to an error of metabolism. He recognizes that some careful clinicians believe that all cases are due to an infective focus, known or unknown; but if this be true, it places many instances of the disease in the class of those having a hidden or unrecognized focus. Either there is a distinct type of rheumatoid arthritis in which the disease is due to an error of metabolism, or else there are cases in which the cause is a hidden infection which responds to measures aimed to correct faulty metabolism.

The x-ray studies in Pemberton's cases showed the atrophic process generally predominating, but it was practically always accompanied by hypertrophic changes to a greater or less degree. In most of the cases reported there was an elongated, tortuous and sometimes prolapsed colon. In the few which showed a practically normal position of the colon, two-thirds were constipated. Pemberton concludes that rheumatoid arthritis may occur in persons in whom no anatomical abnormality in the alimentary tract can be demonstrated by the x-ray. To this I would take exception, for in a large number of cases examined by me, although the position of the bowel was not to be seriously criticized, there was considerable abnormality in its function, the principal finding being a state of spasticity of the bowel, accompanied in many instances by

excessive mucus in the stool and other clinical evidences of chronic colon infection.

There is no constant relation between the contour, especially as relates to apparent kinks, and the functional behavior of the large bowel.

We should mention also the value of the x-ray in noting the progress in some cases of rheumatoid arthritis of the hands. There is noted a diminution in the ulnar deviation and an improvement in the position of the small bones, corresponding to improvement in the general condition.

The writer is indebted to Dr. D. J. Davis for the privilege of studying, by means of the x-ray, certain animals in whom arthritis has been produced experimentally as the result of certain diets. Dr. Davis has already spoken, and the writer will show these slides to illustrate the remarks already made by the doctor.*

Guinea pigs were given special, exclusive diets, some a diet of milk, raw or boiled, some a diet of barley, some a diet of oats and some a normal diet, for purposes of control. The guinea pigs on a pure milk diet developed an arthritis at a definite period, nearly always the twenty-first day. The animals on an oats diet developed an arthritis at an earlier date, about the eleventh day. These points have already been mentioned in Dr. Davis' paper. There were three classes of joints examined in these guinea pig experiments:

1. Those in which there was an acute arthritis which had existed for three or four days;
2. Cases in which the joint lesion was four or five weeks old;
3. Cases in which six or eight months had elapsed since the joints were involved.

In the acute cases there was no perceptible roentgenographic change except the periarticular soft tissue swelling. I thought I was able to detect, in certain instances, the roughening of the epiphyses.

In the second class, where the joint lesion had existed for four or five weeks, there were more marked changes perceptible, particularly rarefaction; osteophyte formation and roughening in the region of the epiphyses were still more marked.

In the healed cases there was perceptible osteophyte formation with thickened periosteum and

*A series of slides illustrating the various points of this paper and the animal experiments of Dr. Davis were shown by the speaker at the close of his paper.

broadening of the shaft of the bones in the epiphyseal region. There were several pathological fractures in these old cases, some of which had not been previously observed in the laboratory.

These conclusions were all drawn after careful study of joints in control animals.

Joint Tuberculosis. In the very earliest stages of joint tuberculosis, when the disease is confined to the synovial membranes, there may be no recognizable deviation from the normal. Among the earliest changes recognizable on the roentgenogram may be included (a) absorption of lime salts with resulting increased transparency to the rays; (b) increase of fluid in the synovial sacks. The above makes it difficult to get anything more than a poor and ill-defined shadow of the bone. Roentgenograms of tuberculous joints are, as a rule, from the photographic standpoint, disappointing. The outlines are blurred and the spaces of the cancellous bone give an effect of fuzziness. This blurring of contour and detail of bone structure is due partly to fluid, partly to thickened synovial membranes and partly to decalcification. Bloody effusion into a joint may simulate the blurring of tuberculous disease. At the beginning, it is often difficult to recognize isolated or infiltrated tuberculous foci. The quality of the shadows must be interpreted. Errors are frequent, but the chance of error may be lessened if several roentgenograms are made in every suspected case of early joint tuberculosis and if one compares the suspected with the sound side, until great experience in the reading of roentgenograms has been acquired.

In doubtful cases, we must be suspicious of a roentgenogram which shows increased transparency with decreased accuracy of outline and bone detail. This is especially true in tuberculous disease of the carpal and the tarsals.

In later stages of tuberculous joint disease we may observe ulceration of the joint surface with irregularity of the surface of the articulation and enlargement of the articular space.

Still more advanced cases show blotches of more or less darker shade, indicating an area of tuberculous necrosis. There may be ulceration, sequestra, osteitis, osteophytes and abscess formation.

Particularly in tuberculosis of the dorsal spine, and occasionally also in tuberculosis of the lum-

bar spine, there may be seen a peri-spinal tumor indicating the site of the abscess. The peri-spinal tumor is especially well seen when it occurs at a level higher than the diaphragm.

Healed tuberculosis in joints is evidenced by a thickening in the cortex of the bone, probably compensatory for the loss of strength in the cancellous tissue. This appearance is not peculiar to tuberculous lesions, however, but may attend any condition characterized by atrophy of the bone.

The x-ray aids us in arriving at some conclusion as to the activity of the focus. In active joint tuberculosis, even in a carefully made roentgenogram, there is blurring of the outline which Shenton has likened to a chalk drawing very much rubbed out, the general x-ray characteristic of active tuberculous joint disease being want of contrast and want of detail.

The rarefaction of bone in other forms of deforming arthritis is very different from that in tuberculous disease, the result being an increase in detail and corresponding improvement from the photographic standpoint.

Luetic Joint Disease. Of the various forms of joint syphilis the present paper will mention only Charcot joints. The x-ray findings in early syphilitic involvement of the joints are not characteristic. Unless there develops a synovial effusion, or unless one discovers the evidences of a characteristic osteoperiosteitis, the evidences are not likely to be different from those of acute articular rheumatism. As diagnostic characteristics of syphilis Redard cites the clear blotches at the level of the epiphyses, indicating the presence of an inter-osseous gumma and the evidence of a rarefying osteitis; the increase in the circumference of the bones seen especially in the epiphyseal region; the osteophytes; the irregularity of certain portions of the bones and spontaneous fractures. The roentgenogram does not record the exact size of gummatous deposits which are not ossified, since new-formed bone is still permeable to the roentgen ray. The ossifying process involving the capsule gives rise to a varying quantity of osseous debris within the joint, well shown in roentgenograms of typical cases.

From the x-ray standpoint the typical findings in tabetic arthropathy are the extensive proliferating and destructive processes which run a parallel course and lead to extra-capsular ossifi-

cations due to bone formation in the fibrous layer of the joint capsule. Fluid in the joints, subluxations and pathological fractures, and often the absence of pain even on motion, are other diagnostic features of importance. The bone lesion sometimes resembles sarcoma. In a Charcot ankle there is likely to be an inversion of the foot, owing to the absorption of the lower end of the tibia and possibly also of the astragalus. In contra-distinction, Pott's fracture is always an eversion fracture.

In incipient cases differential diagnosis is difficult. The absence of pain is a constant finding in these cases, yet in some instances the movements of the joints are exceedingly painful.

In the tabetic form of syringomyelia, arthropathy occurs in about ten per cent of cases. Thickening of the bones in the region of the epiphyses, osseous layers which are poor in calcium salts, and an atrophic condition of the bones, and occasional joint symptoms sometimes appear on account of interference with the trophic impulses. During healing, after fractures in this condition, there is sometimes observed excessively hypertrophic callous proliferations and ossifications in tendons. Alban Koehler has described the following characteristics in the roentgenogram of the hand in a case of syringomyelia: 1. Thickening of the pulp of the fingers, especially the distal extremity; 2. The last phalanx is hypertrophied, atrophic in structure; 3. All the bones of the hands are atrophic.

Gonorrheal Arthritis. Gonorrheal arthritis is attended by the same bone changes as are seen in other forms of infectious arthritis. There is the same translucency of all the bones of the joint and those in the neighborhood of the joints.

Traumatic Arthritis. As the result of trauma, we find changes which may be described as atrophic arthritis or hypertrophic arthritis, or mixed atrophic and hypertrophic arthritis. The characteristic of this form of arthritis is that it occurs only in the injured joints and in the joints distal to it. So far as the writer is aware, the x-ray is not otherwise able to differentiate between the traumatic arthritis and that due to senile changes and metabolic influence.

Streptococcus Arthritis. Through the courtesy of Dr. D. J. Davis, in connection with the laboratory work of St. Luke's Hospital, Chicago, the writer has had the opportunity of studying,

roentgenographically, the joint changes occurring in rabbits into whose ear veins there was introduced a culture from the tonsils of patients suffering from rheumatoid arthritis. There occurred the progressive joint swelling with later a mixture of atrophic and hypertrophic changes until finally the picture of rheumatoid arthritis in the human was duplicated in the animal. There was also noticeable a periostitis involving the contiguous portions of the shafts of the long bones near the affected joints.

THE ETIOLOGY AND PATHOGENESIS OF RHEUMATOID ARTHRITIS.*

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In this discussion of arthritis, I shall not attempt to cover the entire field of its pathology, but will limit myself to what I consider its more important phases and especially to recent work that has been done along this line. I wish to state at the outset, that in view of the bewildering and often meaningless nomenclature of arthropathies, I shall whenever possible adhere to an etiological classification; for with our advancing knowledge of this subject, such a classification is rapidly becoming more and more feasible and practical.

The true gouty arthropathies and the arthropathies occurring in nervous diseases (tabes, syringomyelia, etc.), I shall pass by since they are types of arthritis whose etiology and nature have been fairly well determined. The true traumatic varieties also will not concern us here.

The infectious arthropathies include a large group of joint disorders, some of which are well known, others not. The acute joint infections caused by pneumococci, streptococci, staphylococci, gonococci, meningococci, typhoid bacilli, etc., are all fairly well known. They may at times terminate in more or less chronic alterations giving rise to various kinds of deforming joint lesions. There are also the joint infections of syphilis and tuberculosis, subacute or chronic from the beginning. Acute rheumatic fever or acute articular rheumatism, we may also now consider a definite infectious disease caused by the diplococcus rheumaticus as described by the

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English observers, Poynton & Payne, Beattie and others, and especially by Rosenow in this country. The above conditions while often presenting their problems and difficulties in the way of diagnosis, treatment, etc., may be considered as solved problems from an etiological standpoint and will not concern us further.

This brings us to the discussion of a large group of chronic joint disorders which for a long time have been considered by many as "probably" infectious. They are referred to by a variety of names. Some writers call them (primary) chronic progressive polyarthritis, a very good descriptive term, but certainly unwieldy for a clinical term. Commonly they are called "arthritis deformans," an anatomic term used especially by Virchow. For this condition it is a most unsatisfactory name, its significance being simply a deformed joint for which so many well-known infectious agents, like the tubercle bacillus or the gonococcus, may be the cause; or which may be caused by trauma or metabolic disorders. This term should certainly be discarded. Rheumatoid arthritis as used by Garrod would seem to be a much more suitable clinical term. The line separating this condition from the more chronic processes caused by the common infections referred to above is not at all clear; it is often difficult and at times impossible to clearly differentiate them clinically or anatomically.

I wish to discuss chiefly from an etiological standpoint this condition in which an infection usually with streptococci, often but by no means always originating somewhere about the head and the upper respiratory tract plays a significant role. These cases present, as a rule, subacute or chronic symptoms of joint disease a striking feature of which is its persistence and tendency to cause more or less permanent change in the joints. The onset may be fairly sudden in many cases, but in others it may be very insidious. Indeed two types have been differentiated; one, the more acute or subacute form, in which there is a more or less sudden onset with fever and tender, swollen joints followed later by subsidence and repeated recurrences; the other, in which the whole course is very slow, but as a rule gradually progressive. The history in such cases is always important and the diagnosis may be made at times with considerable certainty from a

previous infection, such as tonsilitis, pharyngitis, ulcerated tooth, etc. Indeed the history may have much the same significance in these cases as for example, a history of gonorrhea, has in the diagnosis of gonorrheal arthritis.

The pathological anatomy varies considerably not only in different individuals, but in different joints in the same individual; or indeed even in the same joint. Productive inflammation leading to the so-called hypertrophic type may be a conspicuous feature in certain joints. Degenerative changes leading to the atrophic forms are common also. The one or the other of these processes may predominate, but often they go on together in the same joint. Proliferation of fibrous tissue and pannus formation is often present, extensive adhesions at times resulting. Degeneration and fibrillation of the joint cartilages may occur, this being not infrequently one of the earliest changes noted. Marked destruction occurs at times leading to an exposure of bone with consequent bony alterations in the epiphyses. At the margins are exostoses, nodule formation (Heberden) and lipping. The synovialis shows irregular thickenings, hyperemia, destruction and villous formation. The blood vessels reveal endarteritis, marked thickening and sclerotic changes. Hemorrhages and edema often occur in various places about the joint. Microscopically there appears round cell and plasma cell infiltration about the synovialis and periarticular structures. Microscopic degeneration of cartilage and absorptive and osteoid changes in the bone are noted. Such, in brief, are the varied pathological processes that may go on in and about these joints.

Focal sources of infection in such cases include most commonly, tonsils, teeth, pharynx, sinuses, middle ear; other sources at times are noted. Examination of suspected foci from many cases has revealed with remarkable constancy the presence of streptococci of one kind or another. In the crypts of the tonsils which are found so commonly diseased, one finds large numbers of these organisms often to the exclusion of practically all other germs either aerobic or anaerobic. The cultures should be made carefully from the depth of the crypts after incising the extirpated organ with a sterile knife, otherwise the contaminating mouth streptococci,

after intravenous injection apparently from the rich meshwork of synovial capillaries in the lateral plicae. In the ends of the bones, particularly about the epiphyseal cartilages, at times definite infarcts due to bacterial emboli are seen extending inward to the joint, usually subjacent to the periosteum. These experimentally produced lesions in animals bear only certain resemblances to lesions described by others in the heart and joint structures of the human in cases of acute rheumatic fever.

It should be pointed out that hemolytic and other forms of streptococci may occur in the crypts and on the surface of tonsils not only in ordinary streptococcus tonsillar infections, but also in normal tonsils. These streptococci often cannot be distinguished from the streptococci found in the tonsils of those patients suffering with joint trouble. Consequently the presence of streptococci in cultures should be carefully interpreted. They may or may not be significant, just as finding pneumococci in the throat or sputum may or may not be significant for the diagnosis of lobar pneumonia.

Observations have been made in a large number of cases treated by extirpation of infected foci, chiefly tonsils, and also after the administration of autogenous vaccines. I wish to discuss this side of the question only from the standpoint of specific reactions and their bearing on the etiology.

On the whole the administration of vaccines seemed to give good results. In a few cases the vaccines appeared to act like a true specific, the patients rapidly improving both subjectively and objectively. Many cases were apparently not influenced materially by the vaccine and in some the symptoms appeared to be aggravated.

In a number of instances a prompt reaction or hypersusceptibility was noted after relatively small doses of the vaccine. This undoubtedly corresponds to the constitutional reactions noted in other diseases, as for example in gonorrheal arthritis after gonorrheal vaccine. It is an invaluable test when positive of the specificity of an organism. Furthermore, in three cases acute attacks or exacerbations appeared immediately following the removal of the focus (tonsils). This phenomenon has been noted by many observers and arises probably as a result of the dis-

semination of the infectious agent through the body.

With reference then to these specific constitutional reactions we may say that the frequent relief following the expiration of the focus, the instances of acute exacerbation immediately after its removal, the increased susceptibility of some of these cases to the streptococcus vaccine all speak strongly in favor of these streptococci being in some way concerned in the etiology of rheumatoid arthritis.

The subject of the relation of vascular changes to arthritis is a very large one. This entire question has recently been fully discussed in an extensive monograph by Wollenberg,⁴ in which a bibliography of over 140 articles gives one some idea of the extensive studies made along this line. Wollenberg maintains that sclerosis and vascular obstruction partial or complete is always found and indeed is the direct cause of the changes in arthritis deformans. The causes of the vascular alterations are numerous, being such factors as trauma, infections of various kinds, intoxications, senility, etc. That the vascular changes may be of great importance in certain cases there is little doubt. We have noted in our deforming streptococcus arthritis in rabbits, vascular changes consisting of inflammatory proliferations about the vessels supplying the joint. Embolic processes involving the ends of the bones have also been seen and described in these animals. Experimental obstruction of vessels may lead to atrophic and deforming alterations. In old people undoubtedly the vascular sclerosis is important and in it the so-called senile arthritis may well be the sole factor in causing deformities of the joints, a process exactly analogous, for example, to the atrophic and scarring changes produced by arteriosclerosis in a kidney.

In discussing the etiology of chronic arthropathies, mention should be made of alterations possibly dependent upon or related to metabolic processes. Metabolic arthritis is an old term and the view that abnormal changes in bones and joints may be associated with an abnormal metabolism naturally is intimately connected with the study of gout. Besides the gouty arthropathies there exists evidence indicating that in other chronic deforming arthropathies there is

4. G. A. Wollenberg. *Aetiologie der Arthritis deformans*. Stuttgart, 1910.

more or less constantly a disturbance of metabolic processes, this disturbance being, however, especially in relation to calcium. Lindemann,⁵ for example, in a careful study of the metabolism in 11 cases of what he calls chronic deforming arthritis and which from his description evidently correspond to rheumatoid arthritis finds very constantly a distinct retention of calcium when such individuals are placed on a carefully regulated diet. These observations support the work of Hirschberg⁶ who obtained similar results, though with perhaps less carefully controlled experiments. In gout, on the other hand, it is interesting to note that there is, in addition to the purin disturbance, an excessive loss of calcium by the body. On the basis of these findings, Lindemann recommends for cases of rheumatoid arthritis a diet poor in calcium, with which he claims distinct improvement. Lindemann also calls attention to the fact that in his series of cases of chronic arthritis in addition to the calcium retention there was evidence on close examination of a more or less distinct disturbance of the inner secretions in many of his cases (exophthalmos, enlargement of thyroid, relative lymphocytosis, eosinophilia, anomalies of menstruation), as well as the presence of foci of infection. Along similar lines is the recent work of Pemberton,⁷ who reports such remarkably good results with a diet of low caloric value. In his series of 17 cases he observed rapid and permanent improvement, in many instances amounting to cures, with such a carefully regulated diet.

That the animal organism is highly sensitive to diet may be illustrated well by animal experimentation. In our laboratory recently, Dr. J. J. Moore and the writer have been studying the effect of certain diets on guinea pigs. On a diet of pure cow's milk, raw or boiled, in from 14 to 22 days remarkable alterations occur, especially about the joints, in the ends of the long bones and in the muscles of the extremities. These changes result in marked joint deformities, exostoses, and at times pathological fractures. The first changes appear to be hemorrhages which cause disturbances in the nutrition of the bones, es-

pecially about the cartilages. Other changes are hyperemia and bleeding from the gums, loosening of the teeth, etc. If we attempt to find its analogue in the human it perhaps resembles more closely scurvy than any other condition, though there are points of resemblance to rickets, to osteogenesis imperfecta, to the purpuras, to erythemas, to multiple enchondroses and exostoses, to anaphylactic intoxications and to some cases of chronic deforming arthritis. The disease is perhaps not exactly identical with any of these conditions; but the point I wish to bring out is that we have here an example of remarkably definite changes affecting especially the osseous and articular system, produced and controlled experimentally in animals by a slight alteration in diet. I think all of these various conditions should be more carefully studied from this point of view.

Now what might be the relation of these metabolic disturbances to the infection? Which process is primary? And let me say that this is not a new question. We must frankly admit, I think, that these metabolic changes and constitutional defects might be the result of infection; but on the other hand we must admit that it is possible that they might furnish the proper soil for an infection. The one or the other or both may be true. But in view of the sensitiveness of the bony system to a one-sided diet it does seem reasonable that, in a given case of chronic deforming arthritis, with its various osseous and articular alterations caused, let us say primarily by an infectious agent, in order that proper reparative and healing processes should go on, a proper and well-balanced diet should be most carefully selected. Nearly all writers on the treatment of arthritis have emphasized the necessity of a properly regulated diet, some for one reason and some for another; and I think that we may have in these animal experiments an experimental basis for some of the benefit which seems to have been derived in this way.

Such a view point as this I think might well be our working hypothesis in the further study of these chronic arthropathies, and this I believe is the most rational viewpoint which the student of etiology and pathogenesis of this condition can present to the clinician at the present moment.

5. *Zeit. f. Exp. Pathologie und Therapie*, 1914, XV, 436.

6. *Berl. klin. Woch.*, 1911, LXVIII, 2056.

7. *Am. Jour. of Med. Sci.*, 1913, CXLVII, 423.

THE MEDICAL MANAGEMENT OF CHRONIC ARTHRITIS.*

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The subject of this paper will be limited to a discussion of the treatment of chronic deforming arthritis and the usual coincident myositis.

The disease is one of the most difficult to manage of all conditions which afflict mankind. To relieve the patient will require knowledge, skill, patience and a constant optimism on the part of the physician. It may be necessary to keep the patient under a management extending over months or years. A part of this time must be spent in a hospital where all of the aids of diagnosis, preliminary surgery, bacteriological studies and the necessary disciplinary management may be commanded.

Elsewhere¹ I have attempted to explain arthritis-deformans as an infectious disease and have cited the experimental bacteriologic and pathologic work of Davis², Jackson³ and Rosenow⁴ in connection with our clinical research.

Methods of Treatment.—The first and very important part of the treatment is to locate the portal of entry of the infectious microorganisms and to study the general condition of the patient. The preliminary thorough investigation of each patient enables one to know the exact degree of joint and muscle involvement. All progressive types of the disease may be checked and unless destructive bone, cartilage and other tissue changes have occurred, recovery may ensue.

To locate the focal origin of the systemic disease is not always easy. One must investigate all possible sites. Our experience would indicate the following regions of focal infection with a frequency and importance in the order named: faucial tonsils and dental alveoli (with secondary cervical lymph nodes) of about equal importance; sinuses of the head; intestinal stasis, due to abnormal anatomy; chronic prostatitis and vesiculitis seminalis; pelvic disease of women; chronic pyelitis; chronic appendicitis; chronic cholecystitis and chronic abscesses anywhere else in the body. Any one or more of these foci may coexist. Consequently it often requires repeated examinations aided by specialists in diagnosis of the ear, nose, throat, teeth, pelvic organs, etc. Blood

counts and cultures, radiograms of joints and jaws and of the gastrointestinal tract, after bismuth meals are frequently necessary preliminaries.

The next step is the removal of the tissues involved in the focal infection or a correction by operative or other means of the condition which permits the existence of the local infection. If the focal points of infection are not all removed failure will result. Hasty removal of the infected faucial tonsils may still leave other infected foci in the jaws or sinuses of the head or elsewhere as we have found, much to our embarrassment.

The infected tissues and exudates should be examined for the dominant bacteria by cultural methods. This affords a knowledge of the character of the focal infection and a means of treatment by autogenous vaccines. The majority of these patients have been ill for years. Through long suffering, overuse of drugs, exhausting baths, faulty diet and other measures, they are usually anemic, more or less emaciated, discouraged, nervous and debilitated.

Rest treatment is necessary at first. This must vary in length of time and character dependent upon the individual. Continuous bed treatment may tire and for that individual an easy chair may be used a part of the day. Good air and sunshine are essential. With proper clothing a protected sunny porch may be utilized. Good, wholesome, nourishing food of a mixed character should be given. The malnutrition calls for a maximum of protein in the form of meat, fowl and fish. Fruits and green vegetables should be used freely. They will aid in preventing the putrefactive process of the intestinal contents. Carbohydrates, fats, milk and its products may be liberally used.

Restorative tonics of iron, quinina, strychnina and other drugs may be indicated. No specific restoratives are required. The syrup of the iodid of iron, Bland's mass or any other preparation may be used. Fowler's solution, cacodylate of soda or any other form of arsenic may be used with iron. Laxatives are usually required. Compound licorice powder, compound rhubarb pill, preparations of cascara sagrada or any other simple drug is indicated. Nervous patients may occasionally require a moderate dose of one of the bromides. The salicylates in moderate amounts will palliate the pain incident to tire, etc.

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The environment of the patient must be subjectively pleasant. Optimism must be the sentiment of every one who comes in contact with the sufferer. The irritability and frequent periods of despondency must be met with a patient, kind and considerate attitude.

The method of joint, muscle and other tissue infection is hematogenous. Bacterial emboli lodge in the arterioles causing endoarterial proliferation, partly or wholly plugging the vessels. Hemorrhage may occur into the tissues. The strains of the streptococcus, which caused chronic arthritis and myositis, live and multiply in a low oxygen tension. They cause occlusion of the arterioles, deprive the infected tissues of nutrition and oxygen and thus produce a condition favorable to their own development. Furthermore, Oxhausen⁵ has shown that ligation of some of the arteries supplying a joint will produce an aseptic chondro-osteitis with subsequent metabolic changes resembling arthritis deformans. The bacterial embolism and consequent occlusion of the arterioles supplying joint tissues, muscles, etc., with nutriment is a rational explanation of the continued infection and of the metabolic changes of joint tissues, muscles, fasciae, aponeuroses, etc. This also explains the progressive nature of the disease. The streptococci in the infected tissues multiply and serve as a constant source of infection of other regions. Bony overgrowth, ankylosis and muscular contraction occur because of lack of nutrition,—want of blood supply.

The main problem then is to get rid of the systemic infection and finally to overcome its sequence,—the deformities.

As stated above, primary rest is necessary as long as motion causes pain. In varying time, four to six weeks, passive motion with gentle massage may be begun. The amount of passive exercise must be gauged by the effect upon the individual. The patient, always more or less nervous, tires easily. To these patients tire is painful. Day by day the exercise must be increased. The rest, restorative measures (food, etc.), should improve the general nutrition and blood circulation. The passive exercise will gradually improve the local blood circulation and oxygen supply to the infected tissues. In due time active exercise is added. This must be systematically and regularly performed. Usually

a nurse or masseuse should teach the patient the lighter forms of calisthenics.

These measures, namely: rest, restorative food, pure air, environment of optimism, graduated passive and later active exercises will overcome the debility, malnutrition and poor general circulation. They will also help to restore the local circulation and oxygen supply to the infected tissues. By these measures the natural defenses of the body are improved, the infected tissues become richer in oxygen and consequently a poor culture medium for the invading micro-organisms. Finally the destructive progressive metabolic changes of the tissues cease. Gradually one may note favorable changes in the joints. Atrophied, contracted muscles increase in bulk and functionate. But one dare not relax the control of the patient. Daily systematic passive and active exercises increased gradually must be continued until a relative restoration occurs. Otherwise a relapse is apt to occur because of neglect of one or more of the above important factors relating to nutrition, general and local blood supply, etc.

These hygienic measures have been used for years with more or less success in the treatment of this disease. We can understand failures and inexplicable relapses by the neglect to remove the dominating etiologic factor, the primary focus. Reinfection would occur as soon as the natural defenses of the body were lowered.

Specific Treatment.—Autogenous vaccines made up of the dominating strains of streptococci obtained from the tissues and exudates of the focus of infection have been used by us. The dose used has been from 100,000,000 to 1,000,000,000. The large dose does not seem to be any more effective than the small one. The opsonic and phagocytic index has been estimated in many patients before and after vaccination. Both indices are increased as a rule after a considerable period. Vaccination with a large dose usually causes some soreness, redness and swelling of the skin at the point of inoculation. Focal reaction, in the form of increased soreness and aching of the involved joints and muscles sometimes occurs within twenty-four hours after the vaccination. General reaction in the form of general discomfort, rise of temperature, etc., rarely occurs. Some patients express a feeling of improvement soon after the vaccination. The evidence of focal and

general reaction is entirely subjective and therefore of doubtful import.

The use of autogenous vaccines appears to increase the defenses of the body as judged by a study of the opsonins and phagocytic index. How much of this improvement is due to the general management described above is important when one considers the use of vaccines as a specific therapy. If one is to use antigenic inoculations of any kind it would seem rational to use autogenous ones. It is my opinion that the general measures of management and treatment are absolutely necessary to succeed in helping these patients. To this management may be added autogenous vaccination without fear of harmful results. The use of stock vaccines seems less rational. The use of vaccines in the treatment of chronic deforming arthritis without attempting to find or remove the dominating etiologic focus of infection and without a systematic hygienic management is irrational and most unjust to the patient.

Other Measures of Management.—The improvement may be hastened by mechanical measures. Bier's method of flooding the infected muscles and joints with blood, by means of the proximal application of an elastic bandage may be practiced after the patient is well on the way of improvement. When used too early, with swollen, tender joints or used too long at a time, more harm than help may occur. The forcible stretching of contracted tendons and muscles under gas or ether anesthesia is time saving. This cannot be done until the patient has reached the stage of beginning active exercise. Splints, braces and plaster casts may be applied to correct deformities, but should not be worn too long. Any apparatus which interferes with the measures used to restore the blood circulation to the infected parts is contraindicated. A cast worn for months, still further diminishing blood supply, may cause complete bony ankylosis.

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THE ROLE OF THE PYLORUS IN THE ETIOLOGY AND TREATMENT OF GASTRIC ULCER.*

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We may for our purposes divide ulcer into two varieties—acute and chronic. The former are often multiply; according to Fenwick, in fifty per cent of the cases. They may be situated anywhere in the stomach and bear no particular relation to the pylorus. They are probably simply superficial ulcerations of the gastric mucosa. They may be due to a variety of causes, first, and apparently most frequently, to infections elsewhere in the body through the blood. Smithies reporting on a series of cases proven at operation found that 66.3 per cent gave a previous history of cholecystitis or appendicitis. Bolton reports multiple ulcerations in chronic infections of the leg, pneumonia, tonsillitis, etc., Dieulafoy in pneumococcus septicemia. Experimentally they have been produced by intravenous injections of staphylococci, streptococci, bacillus coli, bacillus dysenteriae, etc., and, of course, other varieties of toxic ulcers, as in uremia and eclampsia, and traumatic ulcers are well-known. The majority of these cases, unless they happen to erode a blood vessel or perforate and cause peritonitis, give no symptoms whatsoever.

Chronic ulcers, on the other hand, are most frequently single and in at least seventy-five per cent of the cases situated near the pylorus. It is reasonable to suppose that they arise from the acute variety, but how is a more difficult question. It is needless to enumerate the large number of theories which have been advanced to account for the non-healing of acute ulcers. Suffice it to say that it has been shown experiment-

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ally that while it is an easy matter to produce the acute variety, yet in practically all cases ulcers so produced heal readily in three to four weeks. The theory which at the present time appears to me to fit the facts most accurately is one which has resulted from radiographic observations. It has been noticed by a number of men independently in ulcer cases, that spasmodic contractions of the stomach, both at the site of the ulcer and at the pylorus, are frequently present. These are not organic, for they disappear under anesthesia, and sometimes even with an atropin injection. These contractures are probably due to irritation of the base of the acute ulcerative process, and may occur anywhere in the stomach, but most frequently at the pylorus. As a result of this pylorospasm then, food is retained in the stomach a longer time than normal, i. e., motility is impaired, gastric juice is secreted also for a longer period, and we have a so-called hypersecretion, which is probably merely another name for hyperacidity. Another result from this pylorospasm is increased peristalsis, especially noticeable at the pyloric end of the stomach. Let us now take as an example a stomach, the site of a number of acute ulcerations, one of which is situated near the pylorus. As a result of the pylorospasm and the resulting increased peristalsis, the food particles are ground against the base and side of the ulcerated area, resulting in an inflamed area which may become indurated or, being exposed for an abnormally long period to the action of a hyperacid juice, is actually digested away, and we have in the one case a callous ulcer, in the other a spreading ulcer, both chronic. Ulcers situated elsewhere in the stomach, where peristalsis is not so violent nor the gastric juice so active, heal far more readily.

Of course, ulcer at the pyloric sphincter will mechanically impair motility.

Experimentally, we have been able to show, first, that by producing an acute ulcer and then a partial pyloric obstruction there results a hyperacidity or hypersecretion, with resulting delay in the healing of ulcers so produced, and second, that such delay results frequently in chronic pyloric ulcers, comparatively rarely in chronic ulcers of the fundus. These experiments will be reported elsewhere. These facts account for Fenwick's statistics mentioned above, acute ulcers

being scattered in all positions in the stomach, chronic ulcer in seventy-five per cent of the cases at or near the pylorus.

That such impaired motility occurs clinically has been amply demonstrated. To quote one group of statistics: Of 404 cases from the Mayo clinic, demonstrated by operation, Smithies found 65.3 per cent with impaired motility. Therefore, the first relation of the pylorus to chronic ulcer is as an etiologic factor. It further plays a rôle in the symptomatology in the production of the so-called late pains of Moynihan, who considered that a burning pain coming on two to three hours after eating and possibly also at night was sufficient grounds for a diagnosis of duodenal ulcer. The French have for many years called this symptom-complex the pyloric syndrome, and considered it due to ulcers situated near the pylorus, whether on the gastric or the duodenal side. A satisfactory explanation of these pains is that of Hertz, who believes that when the free hydrochloric acid is at its height, the irritation of the base of the ulcer reflexly produces the increased peristalsis of the antrum and the pylorospasm, as mentioned above, and that the consequent rise of intragastric pressure is felt as a painful sensation. Of course, the presence of increased acidity on the *normal mucosa* or even of normal acids on a hyperesthetic mucosa may produce the same increase in intragastric pressure, and we will find the same syndrome present in reflex hyperacidities, as actually occurs occasionally in gall-bladder or appendix disease without any gastric ulcer, or in neurasthenia, a condition which has recently been re-christened vagotonia.

A further consequence of this theory is, that ulcer anywhere in the stomach (contrary to Moynihan's dictum), if sufficiently irritated, may cause this same group of symptoms. For example: L. W., forty-nine years of age, has had gastric disturbance at intervals for thirteen years, characterized by pain about two hours after meals. Sometimes awakened at night by same pain. Relieved by eating and by vomiting. X-ray and operation showed a callous ulcer on the lesser curvature, well towards the cardia. He had impaired motility, but no hyperacidity. An example, then, of late pains, with the seat of the ulcer a considerable distance from the pylorus. To sum the matter up, Moynihan's typical

duodenal pains *may* be due to ulcer of the duodenum, or more broadly to ulcer near the pylorus whether on the gastric or duodenal side, but may also be due to ulcer anywhere in the stomach, or to a reflex disturbance from any diseased abdominal organ which calls forth an increase in intragastric pressure sufficient in degree to be painful.

The second class of pains in which the pylorus is concerned is due to adhesions in the region of the pylorus. These are among the so-called early pains, and can not be differentiated clinically from pains due to peritoneal irritation at any part of the stomach, and are produced at the time when peristalsis reaches its maximum, namely, fifteen to twenty minutes after beginning to take food. They are due to pressure or pulling on the sensitive subperitoneal tissues, and vary from a dull ache or feeling of fullness to a sharp pain.

The treatment of these conditions is, of course, a consequence of their interpretation.

First, we relieve the hyperacidity, since this causes pain and helps render the ulcer chronic, and, as stated above, even when we find the above symptom-complex and no hyperacidity, neutralizing the acid still relieves the pain. We may neutralize them with alkalies, bind the free acid with proteids, inhibit their secretion with astringents, belladonna, fats, or remove the excess gastric juice with the stomach tube, or combine several of these methods. For instance, we can bind the free acid and inhibit to some extent the excess secretion by giving a proteid-fat mixture, such as equal parts of milk and cream. By giving small amounts at two-hour intervals we can prevent the continued presence of free acid in the stomach. By giving alkalies, such as sodium citrate and burnt magnesia, in between the feedings, further neutralization is secured. Citrate is preferred by many to carbonate, as there is no carbon dioxide gas formed when in contact with acid. If sharp pain still persists, we may conclude that the presence of food alone may give rise to pylorospasm, and to reduce this give atropin in small doses, such as 1/200, until toxic symptoms arise. The great majority of uncomplicated ulcers will improve markedly with the above treatment and rest in bed in forty-eight hours. Papaverin has not yet been used

sufficiently to decide as to its merits as an antispasmodic.

A milk and cream mixture alone soon becomes distasteful and we are forced soon to expand the dietary. Remembering our objects, which are to relieve the pylorospasm with its consequent hypersecretion and impaired motility, we give nourishment in the form which leaves the stomach earliest. It has been abundantly demonstrated that the more finely divided food is, the less secretion it calls forth, and the quicker it passes the pylorus. If we have all meat passed through a chopper and all potatoes and vegetables through a hair sieve, we have the so-called gastro-intestinal diet of Adolph Schmidt, and can expand our ulcer diet rapidly by the end of the second week in the vast majority of cases.

After about three weeks of alkali-atropin medication I have found it advantageous to give an astringent, such as silver nitrate, one-half grain, two to three times daily, in a dilute solution.

The results of ulcer treatment by medication are interesting. It has been repeatedly shown that even when the pain has ceased, that is, when treatment has been successful, another test meal may still show considerable hyperacidity and apparently the only factor markedly influenced is the motility, which is improved. In some few cases, therefore, with considerable stasis, it is necessary to give systematic lavage. In simple ulcers, which do not improve, and in all cases where the peritoneum is involved by direct extension and by formation of adhesions, we must resort to surgery, as, especially in the latter condition, diets are absolutely ineffective.

The battle is still raging between simple gastroenterostomy and more radical measures, such as excision or gastroenterostomy plus pyloric exclusion. Believing, as I do, that the majority of ulcers are amenable to medical treatment, and practically only complicated ones should be operated on, I do not believe that simple gastroenterostomy is at all sufficient in cases where an operation is really indicated, as only too often do we see those same patients return in six months to one or two years with even worse symptoms.

In ulcers of the lesser curvature with adhesions the ulcer should be excised and a gastroenterostomy done to prevent stasis and also to

neutralize free acid by regurgitation of alkaline duodenal contents.

In cases of ulcers near the pylorus, with adhesions, at least a pyloric exclusion must be done besides the enterostomy, and the point of occlusion must be far enough away from the pylorus so that the adhesion-bearing surface of the stomach will be excluded. It may be excised or closed up and left in place. As a result, when gastric peristalsis begins, there will be no pull on these adhesions, and consequently no pain.

DISCUSSION.

Dr. John Benjamin Haeberlin, Chicago: I am especially interested in this subject of gastric ulcer inasmuch as I have had considerable experience along this line. I believe that the newer type of pathology has opened up an avenue, or as it were a train of thought that we can follow up in many of these conditions. If we take our histories of gastric ulcers we will find that many times we have infective conditions occurring in such an individual at some previous time. It was thought many years ago that a duodenal ulcer frequently followed burns of the skin or abrasions of the skin of large nature. Now, there is a type of ulcer which is chronic that occurs in individuals who have a hyperchlorhydria, apparently of constitutional nature; that is, there is a type of individual who has an acid or hyperacid condition of the stomach. These individuals, if you will watch, are the individuals that later on you come to conclude are—and still later on by operation find—that they have ulcerative conditions at the pyloric end of the stomach or in the duodenum. The symptom most complained of is pain. Pain may be early or it may be later. Birmingham in his researches or in his experimental works shows that when we swallow food it does not fall into the stomach as into a sac, but food that is taken in first remains at the cardiac end of the stomach and then gradually comes over to the pyloric end, so that we feel as though the early pains are indicative of the ulcerations towards the cardia and the late-occurring pains are those caused in ulcerations of the pylorus and the duodenum. That, I think, is brought out clinically and in operative work, and I think that it is nearly always found to be true.

A few weeks ago I presented a number of cases of gastroenterostomy following ulcerative conditions of the duodenum at the Englewood branch of the Chicago Medical Society, with marked relief of symptoms. Of course, these cases were done recently, that is, in the last few months, but the cases that I operated on eight and nine years ago are many of them still in good condition, holding weight and have no stomach symptoms. The question of recurrence of these cases of ulcer is, I believe, very largely one of the technique of the operation, and very largely depends on the care of the patient regarding his diet and his general hygienic care.

Dr. J. C. Friedman, Chicago, closing: I tried to make the point that the situation of an ulcer cannot be diagnosed by the time of occurrence of the pains. Peristalsis begins, of course, in the cardia before it appears in the pylorus, but it takes only a fraction of a minute to reach the pylorus; therefore, we cannot locate the pain in the cardia because it begins in ten minutes after eating, and in the pylorus because it occurs two hours after eating. Pains occur in the cardia earlier for other reasons, as I mentioned; they will frequently occur in the cardia a few minutes after eating because there are adhesions there, and if we have adhesions in the pyloric regions pains will occur fifteen minutes after eating just the same as they do in the cardia when an ulcer is situated at that point.

As far as infections are concerned we are now on the infective track, so to speak, and every disease is considered as due to infection, but, unquestionably, a great percentage of ulcers is due to other causes than infections. Trauma, of course, plays a large rôle; just what the percentage is I do not know, but I do not believe that the majority of the ulcers are due to infections.

MODERN GASTROSCOPY WITH DEMONSTRATION OF THE SUSSMANN GASTROSCOPE.*

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Although this diagnostic method dates back in its origin about forty-six years, it is still a procedure used by very few. It is not my purpose to tire you with a lengthy theoretical discussion of the subject; but wish merely to touch in passing the chief facts pertaining to the development of gastroscopy, including in this the various types of instruments that have been used, and then to demonstrate the instrument I have been using, hoping also to be able to demonstrate its application on the living subject.

Kussmaul was probably the first clinician to explore the stomach endoscopically. In 1868 he described such an examination carried out on a "sword swallower." He used a direct-vision instrument, a 47 cm. tube with a diameter of 13 mm. In 1879, Nitze, after perfecting his cystoscope, constructed an indirect-vision gastroscope bent at a right angle; this was flexible and could be introduced in this condition. In 1881, Mikulicz constructed an indirect-vision instrument consisting of a rigid tube 65 cm. x 14 mm.,

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bent at an angle of 150 degrees at the junction of the middle and distal thirds. In 1895 Rosenheim brought out an indirect-vision apparatus consisting of two parts; an outer straight metallic tube and a second closed optical tube carrying also the inflating apparatus. The hollow tube was first introduced and through this the second tube. Two years later Rewidzoff substituted a soft gum-elastic tube for the outer metallic one. Kelling and Kuttner each brought out an indirect-vision gastroscope almost simultaneously (1896). These were both jointed and introduced in the flexible condition. Some five years later (1901) Killian went back to the direct method, which was first tried by Kussmaul thirty years before. However, Killian was able to obtain by means of either the Kirstein head lamp or the Caspar handle, much better illumination than was possible in the earlier work. The next step was for Chevalier Jackson (1905), to substitute distal illumination for the proximal by carrying a filament lamp at the corresponding end of the gastroscope. In 1909 Hill suggested that an instrument should consist of two parts (as did that of Rosenheim), an outer tube which is to be passed first and then to serve as a guide for the introduction of the second (optical) tube. He insisted that the first tube must be passed under direct vision. His ideas resulted in the Hill-Herschell esophago-gastroscope, in which the outer (the direct vision) tube is furnished at the proximal end with a detachable obliquely-placed window so as to allow of inflation of the esophagus during the introduction.

In comparing the direct with the indirect vision instruments, one is struck with the fact that for years after the method was tried by Kussmaul, the direct inspection was not resorted to. There are several good reasons for this. First of all the visual field must of necessity be small. Further one can not explore the various parts of the viscus as he can with an indirect vision instrument furnished with a revolving lens. However, when we come to consider the danger of the procedure, it must be admitted that that method which allows of the introduction of the tube under the vision of the operator (other things being equal) must be the safer. Perforation of the esophagus has occurred not infrequently during the blind passage of the usual type of indirect-vision instrument. This danger

has been obviated in instruments of the Hill-Herschell and Rosenheim type. My chief objection to the direct vision instrument is that it must be introduced with the head of the patient in extreme extension ("sword swallowing" position), which is extremely uncomfortable, as I am sure will be appreciated by those of you who have been doing esophagoscopy. In making an indirect-vision gastroscope, inasmuch as lenses are used to carry the image of the visual field, it is possible to angle the instrument at any desirable location. Such an angle in the pharyngeal portion of the instrument obviates greatly the discomfort. However this angle does not make the examination much, if any, safer than the straight tube examination. If one can add to the apparatus the feature of flexibility during introduction, it seems to me that the danger during this part of the procedure can be fairly well eliminated. The Sussmann gastroscope embodies both of these features; and the chief characteristics of this instrument will now be mentioned. The total length is 74 cm., of which 24 cm. are in the proximal portion. The diameter is 12.5 to 13 mm. Approximately at the junction of the proximal and middle third is an angle of 150 degrees. Although the proximal portion is a rigid tube, nearly two-thirds of the instrument is flexible during the introduction and, of course, is made rigid before inspection is commenced. At the distal end is a light- and lens-bearing head revolving around the long axis of the instrument under the control of a small wheel in the hand of the operator. The instrument is furnished with a means for inflation of the stomach. Before beginning the examination it is necessary to have the pharynx well anesthetized: I have been using 10 per cent cocaine. Liquid paraffin is used as a lubricant. The examination is made with the patient in the right lateral position, placing sufficient support under the head to maintain the spinal column in a horizontal line. The head is held in the "military" position. Sussmann advises that the instrument be passed after the patient has assumed the position mentioned. In two or three instances I encountered difficulty in attempting to pass the instrument in this manner, but succeeded by adopting a method suggested to me by J. C. Friedman: namely of introducing the flexible instrument while the patient is sitting and then

before making the instrument rigid, having the patient assume the right lateral decubitus. However in an article published last month Sussmann advises against this method. In this same article he makes what appears to be a valuable suggestion for those cases in which it is difficult to pass the gastroscope, because of a spine more rigid than usual. While it is being passed, the patient lying on the right side, let the head drop a number of degrees, thus bringing the right side of the face nearer the table, and allowing the instrument to rest in the left side of the mouth. Also he states that this position allows the saliva, etc., to drain more readily from the mouth. It seems to me that the danger in passing the Sussman gastroscope is not much greater than the danger in passing a bougie, providing that each is done with equal care. Further, in my somewhat limited experience, the procedure has not seemed to cause extreme discomfort. At any rate the patients have not complained much. However, they all say that for a day or two after the examination there is a feeling of rawness in the lower pharynx, due in all probability to the pressure of the instrument on the cricoid.

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ARTERIO-VEINUS ANASTOMOSIS IN THE UPPER EXTREMITIES FOR IMPEDING GANGRENE.*

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A very thorough study of the literature of the arterio-venous anastomosis shows that the operation has been performed in the upper extremity six times, on five different individuals by four different operators.

In this group of cases there was one fatality, reported by Bernheim, which fatal issue cannot be attributed to the operation directly, but rather to the general condition of the patient, which was very bad before the operation was undertaken. In this case (embolism of the brachial artery), a

thrombus was found upon autopsy at the site of the anastomosis, in accordance with the usual history of similar cases.

Considering Bernheim's case as doubtful, it may be stated that five of the six operations were successful, giving an operative percentage of success of eighty-five per cent.

Such results stand out in striking contrast with those of the older methods of making an incision in the artery over the thrombus and removing the clot.

In 1912, Gash reviewed the literature of this older procedure and found but nine cases of axillary thrombosis operated on. In his review, in which his own case is reported, Gash states that the operation appears to have been generally unsuccessful, due to the reformation of the clots. In most instances amputation of the limb became necessary.

From a comparison of results, it now seems evident that simple arteriotomy is insufficient and unreliable as a curative measure and that anastomosis should be attempted in all cases of impeding gangrene, due to the obstruction of the artery. This is sufficiently emphasized in the literature which I have reviewed, showing permanent cure in eighty-five per cent of cases, where the blood current has been reversed, and almost total failure in simple thrombotomy.

Before presenting the details of my own case, which appears to be the seventh to be reported, it seems worth while to review briefly the history and development of the procedure of arterio-venous anastomosis.

Experimental blood-vessel anastomosis is not new. As early as 1881 Francois Frank performed anastomosis between the femoral artery and vein and got pulsation in his veins. In 1892 Gignole secured successful end-to-end anastomosis on the dog, and similar results were attained by Raymond, Pettit and others.

The first attempt at arterio-venous anastomosis in man was made by Santrustejin, a Spanish surgeon, in 1902. This pioneer did a double end-to-end anastomosis of the femoral vessels in Searpa's triangle for the relief of extending gangrene in a man of 52. The immediate results seemed satisfactory; but amputation was found necessary on the sixth day and the patient died.

During the same year, 1902, Carrel perfected his technique by establishing the principles that

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successful suturing depends upon the approximation of intima to intima with a minimum amount of injury. The following year Carrel and Bernard reported their first operation on dogs, which, incidentally, resulted fatally.

Horsley has very recently improved upon Carrel's technique so that no sutures enter the lumen of vessel. A special suture staff is required.

In January, 1912, Halsted and Vaughn contributed to the literature a detailed report of forty-two cases of operation on the femoral vessels, eleven of these being for threatened and thirty-one for actual gangrene due to various conditions of the artery.

These authors summarized the signs of the successful reversal of current as the following, given in order of their frequency: First, increased warmth; second, improved color; third, relief from pain; fourth, improved sensation; fifth, filling of the superficial veins; sixth, return of the parts affected to normal; seventh, pulsation in the veins below the anastomosis.

Personally, it seems to me that pulsation in the vein below the site of anastomosis should be of first importance. It is my opinion that no case should be considered successful unless there is a continued pulsation after the operation.

Bernheim, of Johns Hopkins University, has been a strong champion for the operation, and his brilliant clinical work has quite overcome the adverse opinions previously voiced by many clinicians. Bernheim regards the successful employment of the procedure as largely a question of technique and careful surgery, and, in his last report, dated 1913, he supports this opinion by the recital of nine instances in which he has successfully reversed the current without fatality.

Experience has demonstrated beyond discussion that the circulation in the large vein of the extremity may be reversed and that the higher pressure of the arterial current can overcome the resistance offered by the valves of the veins.

Summarizing the literature at the present time, about eighty cases have been reported with successful operative results and permanent relief through arterio-venous anastomosis. However, only six of these operations were on the vessels of the upper extremity; the case I am about to report being the seventh in this group.

With seventy-three successful operations on the lower extremity, there is every reason to as-

sume that like success will attend the employment of the procedure on the upper extremity, since the valves in the veins of the upper extremity are not so well developed. Two factors, however, have reduced the list of operations on the upper; first, the fact that indications for interference in the lower extremity are so much more frequent; second, the reluctance of operators to undertake the anastomosis in the upper extremity on account of the smaller calibre of the vessels involved.

That the operation on the upper extremity is not only practicable, but conservative, is indicated in the following brief review of the six cases before us for consideration.

1. On July 5, 1907, Doberaeur reported a successful operation in which he found embolus of the axillary artery which threatened gangrene of the entire arm. On two previous occasions this patient had been subjected to operation with the old procedure of incision of the artery and the removal of the clot, and a third clot had formed and gangrene continued to progress two days after the last arteriotomy. Doberaeur determined upon anastomosis of the artery and vein, shortly after which operation he found active pulsation in the vein below the point of anastomosis.

2. In 1912 Wieting employed the operation on a male patient, twenty-four years of age, who presented the usual symptoms of impending gangrene. The fingers, hand and forearm were cold and the fourth and fifth fingers were black at their tips. Wieting anastomosed the central peripheral artery with the brachial vein. The artery was clamped and the vein ligated high in the axilla. He employed a lateral union. The patient recovered fully, with hand and arm in excellent condition, although it was necessary to amputate the fourth and fifth fingers on the fifth day.

3. This case, also reported by Wieting, was that of a debilitated woman of sixty, presenting severe bronchitis and weak heart. Although embolus existed in the axillary artery with threatened gangrene, amputation was contraindicated on account of the debility of the individual. Anastomosis was performed as in the previous case. The patient died the second day after the operation and, upon autopsy, a freshly formed thrombus was found at the site of the operation.

4. In this case, reported by Heymann, there was the typical circulatory disturbance of Raynaud's disease. At the crest of the hand and the forearm there was a patch of dry gangrene the size of a silver dollar, extending to the last two phalanges. End-to-end anastomosis was accomplished at the central end of the axillary artery with the terminal end of the corresponding vein. There was complete reversal

of the circulation and disappearance of all evidence of disturbance.

5. This case, reported by Bernheim, is that of a patient aged fifty-two, the tips of whose fingers had been previously amputated for gangrene. Later the gangrene advanced, but was permanently checked by end-to-end anastomosis at the lower end of the axillary artery.

6. In this case Bernheim reports the successful reversal of the circulation in all four extremities of the same individual. The patient was a man of twenty-six and presented gangrene of the little finger of the left hand. Lateral anastomosis was performed with the following technique: An incision was made in the vein and artery at a right angle to the direction of the blood stream. The vessels were united with a single continuous thread and, later, the vein was tied off above the site. Following the operation, the valves seemed to be quite close together. There was no rush of arterial blood. After eight months, pulse formed in both veins.

The seventh is that of the author's, the history of which I desire to present at this time.—Case referred by Dr. A. L. Stuttle.

The patient presents a most interesting history. He is a native of Illinois; aged fifty-two; weight 154 pounds. He used alcohol in excess until six years ago. His general health has always been excellent except that, at the age of seven, he developed an anterior poliomyelitis, which completely destroyed the use of his right leg. Since that time he has used a crutch, consisting of a broom stick with a cross bar at the top.

Since he used no handle, by which he could take the pressure from the axilla, the entire weight of the body was borne by the axilla, the crutch always held to his side by pressure between the body and the arm. The right arm and forearm, thus being free, bore none of the weight of the body and were used in his ordinary occupations.

After forty-five years of this constant pressure, the patient, on the tenth of November, 1913, suddenly developed a severe pain in the right hand, later ascending to the elbow and then to the axilla.

When I first saw the patient no radial pulse was found and, upon complete examination, there was observed no pulsation whatever in the entire extremity except over the deltoid. The pain increased daily and the entire arm became cold and cyanotic. The dorsal surface of the hand showed an area the size of a silver dollar, between the thumb and index finger, which was absolutely gangrenous. The thumb and adjoining two fingers were black. The condition was obviously rapidly progressing and the choice of procedure lay definitely between amputation at the shoulder and arterio-venous anastomosis. The latter was chosen.

The axillary artery was dissected out as high up as the acromial thoracic and was found to be thickened, very hard, the size of the index finger and entirely free from pulsation. Every branch of the artery

below the point of anastomosis was thrombosed and completely occluded.

Evidently we were dealing with a traumatic ascending thrombosis, since the same condition of the artery existed to within two inches of the elbow.

The artery and vein were dissected out and divided two inches below the acromial branch. A solid, organized blood clot was removed by stripping the artery. It was necessary to use this two inches of thrombotic artery for my anastomosis, otherwise it would have been necessary to go back to subclavian.

The axillary vein above this point was severed and an end-to-end anastomosis performed by invaginating the artery into the vein. This was found to be extremely difficult on account of the unusual size of the artery and the small lumen of the collapsed vein.

Four mattress sutures of silk were inserted through the coat of the artery and passed into the lumen of the vein and out again, about one-half inch from its end. The artery was in this way pulled into the vein. The cut edge of the vein was secured to the outer coat of the artery by fine silk Lembert sutures. The invagination accomplished, the temporary ligations of gauze packing about the vessels were removed. The vein below the point of anastomosis filled rapidly and pulsation was noted in the superficial veins. The color of the arm and hand immediately improved and the skin became warm. The gangrenous thumb and fingers were amputated at this time.

Following the operation the patient had no pain and, at present, five months later, pulsation is quite evident in the superficial veins and the result is ideal. Upon several occasions I have amputated the limb for similar conditions and feel that had anastomosis been performed the arm would have been saved.

I want especially to emphasize in this paper, the possibility of conservative treatment when the indication presents. I believe that the possibility for success in the future in selected cases is most encouraging.

Personally, in case another condition of this character is seen in my practice, I am going to be equipped with the Lespinasse absorbable magnesium rings. These present the most simple method for an anastomosis. I feel certain that if you will witness Lespinasse do an anastomosis you will decide as I have. His method is quick, requires less skill, suturing not so fine, and at no time do the sutures come in contact with the blood stream. It is safe and certain. Perroneito, in an article in *La Sperimentale*, September, 1913, suggested a ring differing from the Lespinasse ring in that the rim is nearly all hollow instead of having the small holes. I do not see an advantage in the newer ring.

SUMMARY.

1. Arterio-venous anastomosis should be done more often.
2. The operation is successful in eighty-five per cent of cases.
3. The operation is not more severe than amputation.
4. There is nothing to be lost by attempting anastomosis, since there is no bar to later amputation in case of failure.
5. End-to-end anastomosis is a more satisfactory method to be chosen.
6. It seems that the results will be permanent, although the operation on the arm is still relatively new.
7. Anastomosis has completely displaced thrombotomy.

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THE PSYCHONEUROSES AND THEIR TREATMENT.*

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Steadman defines the term psychoneurosis as "one of a group of minor diseases of the mind which are not actually insanities." Dana further defines this group by saying that "the minor psychoses include all those disorders of the mind which are not insanities, in the strict meaning of the term and in which the patient practically is still a responsible person." He further says that "the distinction between the major and minor psychoses is not an absolute one nor even a scientific one and one type may be grafted upon another." Janet coined the general term, psychoneuroses, to include the formidable group, designated under the common term hysteria, the

psychasthenic group, the epilepsies and the heterogeneous modifications of these types, many of which are abortive types of the major psychoses.

Sufficient has been said to define, in a general way, the types and classification of the disorders we are to consider. The problems before us, however, in their clinical significance, are of greater importance than is ordinarily believed by the average physician. In fact, they cannot be superficially considered because the facts brought out in the study of these cases resolve themselves into problems involving the greater clinical diagnostic considerations, treatment, from the medical or surgical viewpoint and the social problems involving the rights, duties, liberties, etc., of the patient, together with the ever growing importance of the more refined significance these rights, duties and liberties have upon society in general. We at once recognize the need and importance of Angell's saying "that every science is under obligation to analyze the phenomena with which it deals." Therefore, in order to understand the psychoneuroses in the broadest conception of the term we are under obligation to analyze the phenomena with which we have to deal. It is apparent at first sight and in accordance with the definition that we have to deal with phenomena essentially mental in their clinical manifestations. To analyze mental phenomena we call to our service that science which deals with the mind, psychology.

Psychology is that science which claims to formulate the body of ascertained truths about the constitution and mechanisms of the mind. It gives us insight into, and interpretation of, the facts of daily life. It analyzes the complicated mental states and mechanisms as shown in memory, association of ideas, volition and other faculties of the mind. It studies the emotions, which are the foundation for all practical life, for they help us to understand conduct. It contributes to the study of fundamental traits and instincts and leads to the interpretation of these native tendencies as their reactions are noted in intellectual life. In short, it studies all of these facts as they are projected into the larger field of social psychology with its problems in cultural progress as shown in religion, art, morals, laws, and other socializing agencies which unify social progress.

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Doubtless you think I have presented a very formidable array of phenomena for analysis as essential to the clinical study of the psychoneuroses. True, I have, but let me remind you, life is, both in health and disease, from the cradle to the grave, one round of reactions of mental origin, needing interpretation if we are to understand the individual. Again, as Munsterberg says, "from the nursery to the university, from the hospital to the court of justice, from the theatre to the church, from the parlor to the parliament, the new influence of psychology on the real daily life is felt in this country as in Europe, producing new hopes and new fears, new schemes and new responsibilities."

Well may we ask with Munsterberg, this question as we seek its answer in our work: "What becomes of the universe and what of the human race; what becomes of our duty and what of our freedom; what becomes of our friends and what of ourselves, if psychology is not only true, but the only truth and has to determine the values of our real life?"

The problems while many are both individual and social. Individual in that in our clinical service we deal with individuals and must study both in a genetic and general way all of the phenomena presented in the individual case. But, as we proceed into the realms of experience as delineated by the patient and the status of his mental mechanisms we find ourselves confronted with the fact that it is impossible for any one to begin life, much less sustain it, by separating himself from his fellows. The social bond is established by the very act which brought the individual into being; it is continued and rooted in the growth of self-consciousness; it is apprehended by the individual in his own personal self and involves the recognition of others and their interests, whatever his life may be. Upon this fact is based the very radical and fundamental character of some of his social emotions, sympathy, remorse, jealousy, mortification, etc. Likewise the retirement of self—the shutting in of his personality when he seeks to ignore through fear or selfish motives the rights of others and stirs up that great array of events which spring from self-consciousness gone astray. In other words, an individual to live a normal life with his fellows must himself be normal in his mental mechanisms. It is pervers-

sion of these mental processes in the individual which is responsible in part for that group of mental disorders we call the psychoneuroses.

The individual who is typed as a psychoneurotic is such because of the three fundamental factors which have moulded his personality, viz.: heredity, environment and education. It is through the combination of these agencies that he has been socially prepared to be labeled as a psychoneurotic. His individualism, which has led him into revolt and thus brought him to us as a patient, must be studied through the combined agencies of modern methods of diagnosis. The modern clinician is intensely practical and calls to his aid all of the modern sciences, which he focuses upon the patient, both analytically and synthetically, to help in unraveling the problems in diagnosis.

Modern neurological and mental diagnosis has shared in the triumphs of present day accuracy in diagnosis, this accuracy being the work of research workers, the men not afraid in experimental medicine and who encourage us to apply the knowledge thus gained to the relief of the afflictions of our patients. Courage is necessary. Gowers has said that "timidity is almost a greater hindrance to diagnosis than is ignorance." In order not to be hasty or rash or seeking too ardently the opportunity to put a label upon a case, to give it a name, let us in studying all mental phenomena remember what Gowers also said, "whenever you find yourself in the presence of a case that is not at once and completely familiar to you in all of its details, to forget for the time all of your types and all of your names." "Deal with the case as one that has never been seen before and work it out as a new problem to be investigated as such."

In the psychoneuroses we must not neglect the somatic symptoms—we must study the body because "the fate of the mind is bound up with the experiences of the body." When we consider the various structures comprised in the nervous system, their diversified functions, their alliance with and parts of the confederation of the body in which other symptoms are concerned, notably the internal secretions and other agencies which modern medicine shows have very varied reactions, it behooves us to be on our guard in the analysis of the phenomena with which we have to deal in the cases typed psychoneuroses.

Perhaps I have indulged too much in telling you of various factors concerned in the clinical evolution of the group of disorders we designate psychoneuroses. My object has been more of a warning than an attempt to be prolix. I want you to know that a patient becomes the victim of a psychoneurosis through more than one factor, and we must exhaust the three fundamental factors, viz.: heredity, environment and education, before we have arrived at a full recognition of fitness to be so designated. The border of insanity is not always well defined and it is not always ascertainable even in the hands of the experienced.

The psychoneuroses have been much in evidence in medical and popular magazine literature in recent years and especially so since the advent of the Freudian doctrines. There has been much misinformation freed for the superficial minds to gloat over and many faulty deductions made in the amateurish attempts to sound the depth of human experience. To the real student who is willing to take time to accumulate knowledge of the human mind, who is willing to adhere to tried facts and tested formularies, who is seeking the patient's good and not an excursion for variety's sake into the realms of repressed experiences, much can be done to relieve the distressed minds struggling with emotionalism and faulty associations of ideas, which, like Banquo's ghost, will not down.

The experienced clinician must first know the psychic material with which he has to deal. Hence, the necessity of the study of the individual with reference to his family tree, the stock from which he sprang and a proper interpretation of the data with reference to hereditary characters, i. e., whether the clinical observations indicate hereditary or acquired characters. In this day of eugenics we have a whole lot of misinformation regarding heredity in the human family. Until we know more of natural selection we cannot interpret aberrations in the human race nor fully grasp mental characters which can be and are more likely due to acquirements. We all know that individuals differ in their capacities for making various mental acquirements but these characters must depend to a considerable extent upon environment and education in their broadest conception.

It is not necessary that a psychoneurotic be

born as such, but the chances are in the average case that he has such an inheritance. Many a child was born right who became wrong in later years because of faulty training through either bald dogma or no dogma at all. During the early years of life habits of mind are easily formed and may become almost as strong as instincts, especially when reinforced by the accompanying primary emotions of the instincts of which fear is the most formidable. True, the average nervous child is inadequate in his hereditary capital, his potential nervous endowment, but with proper environment, with truth told and made obvious as truth, the average nervous child will demonstrate that more depends on acquirements than on inborn characters in evolving a useful, happy life. Natural selection too will come to the aid of this child if it has been given an opportunity to live under wholesome hygienic conditions which may fortify it even against family disorders of the nervous system and more particularly in the accentuation of characters which mean race preservation.

The clinician, therefore, must study all of these varied parts of the factors, heredity and environment. The American Breeders' Association, Eugenic Section, is doing a great humanitarian work in training observers to study family trees and to interpret environment in the special study of specific characters, traits, etc., noted in individuals, victims of hereditary and environmental influences.

The third factor in the study of the patient is his educational acquirements. This is a broad subject, because I believe we must approach it from the standpoint of the genetic theory of education. It is a practical way, the only way, in fact, in which we can approach the patient in the world in which he lives and thinks; in which we can touch his experience and compare it with our own. We must consider childhood in the light of common experience of the race. The genetic view demands this and in so doing it is helpfully democratic. It stands for the interpretation of the common facts of every day life. It gives interpretation of ways of thinking, feeling and doing which are good common sense ways and which lead to the new humanitarianism. Education thus becomes the science of life, not mere school or book knowledge.

We follow this study of the individual usually

"from backward to before," because in the psychoneuroses it is the experiences of the past buried in the subconsciousness of the present, which are at the bottom of the mental disorder. You may believe me prolix in all that I have said, but believe this one truth that if our race fails, through becoming a neurotic, degenerate social mass, it will be because the forces of civilization have been allowed to oppress the youth of our race through faulty educational standards.

Physicians, you are factors and you must insist on conditions which will allow the youth to attain maximal maturity. We can say that childhood, if left to itself, tends to recapitulate the race. It is largely the traditions of the adult and the influence of environment and the ideals of the society into which the child is born which suppress, modify and obliterate his inheritance and obscure his recapitulatory steps.

We must, therefore, make good his environment, give him lofty traditions and ideals and work for the deepened feelings, new interests and wider outlook upon life. We have our opportunity to overcome native weakness, native inadequacies from which originate the psychoneuroses. The psychoneuroses cannot occur where native forces, native nervous capitalization are adequate to meet all demands. Nutrition is, therefore, a necessary need to prevent and overcome the fatigue which is the basis of all the psychoneuroses. Weir Mitchell taught this years ago and up to the time of his death. Janet has reiterated it in his teachings. Dejerine believes in it and Dercum so fully believes it that he has coined the term "fatigue neuroses" to include a major portion of the psychoneuroses. The Freudian school regard fatigue as a factor but only secondary to the psychogenic factors. I have no reason to change my views expressed some years ago and based upon a rather extended bedside experience that neurasthenia is an acquired condition, an inadequacy of physical origin, and that the mental picture is that due to weakness, exhaustion and irritability. The fatigue is complicated, and as Weir Mitchell expresses it, is dependent upon "nutritive disorder" from which may result endless invalidism. I am not ready to accept the teaching of DuBois and include it under psychogenetic disorders. True it is that we may have a neurasthenia of psychic origin, but only as a rare sequence.

The true psychoneuroses are the hysterias, the psychasthenias and the very varied weaknesses shown in the inadequate individuals when confronted by experiences greater than they can bear. We must remember that the psychoneurotic individual is one whose reactions are out of proportion to the stimulus applied. Consequently, we find such an individual responding to fears, functional irregularities, especially those within the scope of various mental representations and the very varied disturbances of psychic life more or less dependent upon synthetic conditions such as worry, emotionalism, whether of traumatic origin or a native exaggerated mental state, and an intense native or acquired suggestibility added to a peculiar mental status which lacks coherency, is exceedingly passive and more or less automatic. The range of reactions is great and is as varied as the qualities of personality found in the respective patients. This is the reason for psychoanalysis to determine the quantity and quality of the stuff from which originate the reactions which impair the peace of mind or usefulness and serviceability of the individual.

In the treatment of the psychoneuroses we must arrange our points of attack with reference to the problems presented in our forecast of the patient's dilemma. First and foremost in our therapeutics we must study the characteristics of the patient; note the home environment; the larger and extended social environment with its varied incidents; note the history of the experiences of all kinds, especially those which have touched the emotional life and which may require a word association test to give a clue to these deep subconscious memories of experiences of life. Then, again, we must note the physical ailments both local and general and use every means in physical diagnosis to determine the true picture of the case with all of its physical problems. Then, seek for underlying moral causes, which are the greatest factors in bringing about the emotional perturbations in the psychoneurotic individuals. Tact, good common sense, courtesy, kindness and the real spirit of service are necessary qualities in the physician's make-up if he will attempt to solve these riddles of personality. Here is where the psychologically trained physician will find himself useful and serve well his patients whose troubles have been burdens hard for them to carry. Resolute will, coupled

with kindness, will lead the physician to many a victory.

To organize, to meet the fatigue with its exhaustion is the part which demands consideration from the start. Tentative means will not suffice, and it is folly to resort to them. Rest, isolation, seclusion and the necessary adjuvants of systematic feeding, massage, hydrotherapy, etc., as grouped and practiced under the name of the *Rest Treatment of Weir Mitchell* has been my reliance for many years. I have not changed my views or my practice regarding the value of systematized rest. With it, we can practice any form of psychotherapy and even psychoanalysis with far more promising results than by the perfunctory methods of office practice. Why? Because we control the patient; the environment and all of the agencies which contribute to the welfare of the patient. My case records of several hundreds sustain the service it has rendered in the whole range of psychoneuroses where rest was indicated and where the ordinary plan of outdoor life, exercise, tonics and change of scene has failed. It is then a resource in my own practice in which I have confidence, and with Weir Mitchell, I can say the use of it has "become alike courageous and habitual."

I have no doubt of the value of psychanalysis in the psychoneuroses, but I have not yet been convinced that in it we have the panacea which will meet all of the demands of these disorders. No, I am waiting to be convinced, but in the meantime, I find solace, confidence in results and compensation for efforts put forth in the treatment of the psychoneuroses with both physical and psychic (psychotherapy) methods of treatment. The end at least in my judgment justifies the means.

DISCUSSION.

Dr. John Franklin Page, Eureka: I desire to call attention to the importance of this subject to the general practitioner. I think the profession at large is going to the extreme in surgery and in bacteriology and neglecting this most important branch. I heard Wm. Mayo say at one of his clinics that the treatment of nervous diseases was far behind the other departments of medicine and surgery. The field which Dr. Norbury takes up in his paper is most important to every general practitioner, and the most neglected. I am glad that I was here today to listen to this paper, and think we miss a very great opportunity if we do not give attention to this subject.

THE PRESENT STATUS OF THE TREATMENT OF PULMONARY TUBERCULOSIS.*

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The crusade against tuberculosis in the middle west was inaugurated by this society just ten years ago. The purpose of this paper is to detail so far as time will permit what has been accomplished during this period. In order to appreciate what has been done we should take into account conditions as they existed at that time. First of all, we had to encounter the inertia of the public and the profession which grew out of the hopeless apathy which had hitherto characterized our attitude toward this disease. Also the traditions, prejudices and misconceptions as to the nature of the disease and methods of treatment. If it shall seem that we have not made much progress, the explanation is that we have spent most of our time in unlearning what we had previously accepted in order to get onto a rational basis.

We have made some progress in arousing an apathetic public, partially overcome traditional pessimism as to the curability of the disease, demonstrated that climate is not an essential factor, re-established tuberculin as a therapeutic agent, and compelled the acceptance of the principles of the hygienic-dietetic treatment as the only rational and effective method of cure.

We have, however, thus far failed to impress either the profession or the public with the fact that while the agencies used are familiar, the methods are not simple and the application is not easy. In practical experience the general practitioner has found that he was not curing his tuberculous patients by the newer methods from which he was expecting so much. He has also found that patients sent to sanatoria have in many instances not been permanently cured, hence, there is just now a tendency to lapse into former skepticism as to the curability of this disease. The tendency of the human mind is to extremes. This has been demonstrated over and over again in the history of medicine. No remedy or method of treatment, however meritorious, has ever been accepted at its proper value when first

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introduced. Modern methods of treatment of tuberculosis have proven no exception to the rule. Before we can make any substantial progress, we must learn what can and cannot be accomplished by present methods. The public, and to a large extent the profession, have exaggerated opinions as to the curability of tuberculosis, or more correctly stated, not its curability, but the conditions under which it can be cured. First of all, we must appreciate the fact that tuberculosis is a chronic disease; that while it may be cured at any stage of the disease, it is only curable with a reasonable degree of certainty in the incipient stage; that while the agencies used are familiar, their application is always difficult and that it is never quickly cured. The failure to recognize these essential conditions will inevitably result in discrediting the treatment unless efforts are made to change existing opinions and conditions. I cannot better illustrate the obstacles with which we are contending than by giving my own experience in the institutional care of 1,500 cases, covering a period of ten years. Of this number there were classified on admission 10 per cent incipient; 60 per cent advanced, and 30 per cent far advanced. Of this number 372 remained 30 days or less. It would be needless to state that this number received but little or no benefit, were it not for the fact that a large majority were advised that this was all that was necessary. The average length of stay of all patients admitted was less than half that required for the successful treatment of even incipient cases. My experience has not been peculiar and may be accepted as an index of conditions generally throughout the country, more particularly in the middle west. Unfortunately the merits of the treatment are judged by the results, favorable or otherwise, of cases treated under these conditions. In other words, the sanatorium treatment of tuberculosis has been subjected to a test which it cannot stand, and if conditions are not changed, or its merits judged by a different standard, it must inevitably sooner or later be discredited.

For a proper application of the curative possibilities of tuberculosis, a knowledge of the pathology of the disease and the manner in which it is arrested, is essential. If the pathologic conditions associated with various clinical manifestations were more generally known I feel sure that we would hear less frequently of patients

being discharged as "cured" and fewer expressions of disappointment when patients relapse after being seemingly restored to their normal health. In the first place we should bear in mind that the sanatorium treatment is not a specific cure for tuberculosis, in the same way that salicylates are specific for acute rheumatism or antitoxin for diphtheria. We have, in fact, progressed no further than the position summed up years ago by Laennec in his statement that "The cure of tuberculosis is possible to nature. It is certainly not as yet to medicine." The rationale of treatment consists in putting the consumptive in a position to allow of nature doing her best for him, a remedy, which simple as it sounds, has required a long time to develop. The question then is not so much how far can the physician cure tuberculosis, but to what extent under favorable conditions, is the disease curable by nature. Pathologic research teaches us that to increase phagocytic action is the aim of sanatorium treatment.

The efficiency of treatment depends upon the thoroughness with which it is carried out and the perfection of hygienic conditions. This, and the necessity for absolute control of the patient, are the reasons for the existence of sanatoria. Unfortunately the narrow-minded assumption that open-air treatment is all the sanatorium provides, has led to numerous well-meant but fallacious ideas, that open windows in the bedroom, or a shelter in the back yard, will do all that a sanatorium can do in the treatment of tuberculosis. A sanatorium is not only a place where the patient is given a maximum of fresh air, but it is also a place where a patient suffering from this disease is treated scientifically according to the variations of his disease under the guidance of medical experts and where he is fed, clothed, exercised, and rested, according to indications, properly and sufficiently, in order to restore his inevitably damaged nutrition and circulation. The above are the essentials of treatment and simple and inexpensive though they may appear, it is extremely difficult to apply them. The return to nature is very difficult and irksome. The life is rigorous and monotonous and lacks the distractions to which the patient has been accustomed. It denies coddling, which long tradition has instilled into the minds of patients as being of prime importance in the treatment of any

disease. It is because of this that most of the schemes put forward for home treatment of consumptives are of little avail. It requires a patient of exceptionally strong will, who is peculiarly impressed with the necessity of careful routine to adopt sanatorium life thoroughly, even under strict supervision in a scientifically regulated institution. It is almost impossible, except in a few quite exceptional cases, that this treatment can be commenced in the home of the patient, surrounded by sympathetic friends, imbued with all the traditions concerning invalids, and away for the greater part of the time from the advice and direction of his physician. It is difficult at this point and usually impossible to accept a routine which is hard and irksome. The tuberculous patient distorts the true relation of things and if left to himself frequently acts disastrously from this distorted point of view. His moral and mental condition requires a vast deal of study and observation, which is only possible when he is immediately and constantly under his physician's eye.

A consumptive, given up to the care of those about him, is at the mercy of anything that may happen. In spite of frequent visits of his physician, he will have to contend, not only with his own peculiar weakness, which will lead him to commit with the best of intentions the gravest faults, but he must also contend with well-meant, but fallacious advice, of relatives and friends, who though well meaning, are usually his worst enemy. It is emphatically the case, as Detweiler says, that "the individual *in toto* has to be treated and the moral education is quite as important as the bodily treatment. The consumptive is in a peculiar mental condition which renders constant supervision and inspiration necessary. He lacks perseverance and power to concentrate the mind and will upon a definite object. In brief a typical case of phthisis embraces little less than the whole field of pathology."

In other words, the patient is the problem rather than his disease. It is not enough to tell the tuberculous patient what to accept, but he must be placed under an environment which makes this not only possible but easy of accomplishment, hence sanatoria for the treatment of tuberculosis, if for no other reason, are necessary to protect the patient from his own folly and that of his friends. Whatever of success may

be achieved in the future by the home treatment must be as a result of the education which will come through the multiplication of sanatoria. Given a population fully alive to the value of the return to nature implied in sanatorium treatment and carried out in such institutions; given a patient who has had a few months training in a properly organized institution in which the various factors of treatment have been carefully instilled into his mind; given a medical profession more completely conversant with the symptoms and treatment of consumption than at present—then the question of home treatment assumes a very important position.

Aside from the failure to secure an early diagnosis the greatest obstacle to the successful treatment of tuberculosis is in the attempt to carry out the treatment in the home. This delusion is costing the lives of thousands of patients who would otherwise be curable. Home treatment for the untrained patient is the road to disaster, but after the routine has been taught and the patient interested in its importance and encouraged by the results in a properly equipped and organized institution, there is perhaps some prospect of continuing the treatment with success in the home, after the discharge. The sanatorium is an education, but it is far more than that. It is not only a place where patients can be educated as to how to get well, but a place where they are treated until well, and educated how to keep well. This is an important distinction and one that is not usually made. Sanatorium treatment is the only treatment which can claim that it has any considerable success in dealing with consumptives. Such other treatments as are at present in vogue, and which claim to have any value, are simply modifications of, or adjuncts to, sanatorium treatment and at best are poor substitutes.

The argument for home treatment is based on the assumption that because the agencies are so familiar and easily obtained almost anywhere, that sanatorium treatment is not necessary. It is assumed that the patient has a realizing sense of his danger, and intelligence in carrying out directions, that he will have the co-operation of his friends, and the guidance of his physician, who is familiar with the protean character of the disease, none of which assumptions are true, hence failure is the almost inevitable result. Sanatoria for the treatment of tuberculosis are a necessity for sub-

stantially the same reasons that the hospital is for operative surgery. Surgeons do operate in the home when they have no other alternative, but never when they can avail themselves of the advantages of a modern hospital. For the same reason provision should be made for the care of all cases of tuberculosis and until this is done we will make no progress in our fight against this terrible scourge. It is not recognized except by those who have had large experience that the patient and his friends are more of a problem than his disease and even the sanatorium cannot overcome all the frailties of human nature. It simply succeeds more or less perfectly in accomplishing what is almost, if not quite, impossible in the home. When this lesson is learned, as it must be sooner or later, we will have made the most important advance possible under existing conditions.

There is no class of patients for whom so much can be done and who are receiving more bad advice and worse treatment than tuberculous invalids. There is too much self-complacent irresponsibility in the medical profession in relation to this subject. Just so long as we continue to treat this disease by obsolete methods, or fail to direct our energies in bringing order out of existing chaos, we will be remiss in our duty and sooner or later the public will bring us to an account. While it is true that it is the business of the public to provide the facilities for carrying out the treatment properly, it is equally the duty of the profession to arouse and educate the public to its duty, instead of drifting as we are at present. This state is in need of sanatorium accommodations for at least six thousand patients. We have provision for less than three hundred. This condition of things will continue just so long as the medical profession permits it, and no longer.

Tuberculosis is curable. While this is true, not more than one in twenty is cured. Thousands of patients are receiving no scientific treatment whatever, and of those who are, it is applied so late or in such an indifferent manner, that the results are less than one-half of the possibilities. This is not intended as a criticism but simply a statement of fact. The public is beginning to ask, why, if curable, is it not cured? The medical profession must make the answer. Our profession is only partially responsible for existing

conditions, but the public does not know this, and will hold us responsible until we clear up the situation. This they have a right to expect. While it is true that there are many angles to the tuberculosis problem which must be solved by other agencies, the treatment of this disease is in our hands.

In the past we failed to cure tuberculosis because we did not know how. At present, we know how, but fail because the means at our command are not properly applied. We are not so much in need of more knowledge of how to treat tuberculosis, as we are of a better application of the knowledge we already possess.

TWO HUNDRED CASES OF GONORRHEAL URETHRITIS WITHOUT A COM- PLICATION.*

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In all probability, by way of introduction, I should make a twofold apology for the presentation of this paper; first, because of the fact that the subject of gonorrhea in its various phases has been worn threadbare in the literature, and, second, because the prevalence of the disease would implicate that two hundred cases represent too small a number from which to draw definite conclusions. In defence of my first invited criticism, I make bold to state that two hundred cases without a single complication give data enough for consideration, and though I should hesitate to present such a number to a body of urologists, I feel that such a gathering as this, of men in the general practice of medicine, will consider the number of sufficient weight to grant me a willing hearing. In further justification, I might add that it has been my experience that too little importance has been placed upon the urethritis of gonorrhea in its sequelae, not as regards the individual who harbors the disease, in uncomplicated cases, but the communication of the infection to the female—especially in wedlock. The prognosis as to permanency of cure is of far more importance than the actual treatment of the case in the acute stage. This resolves itself into a

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humanitarian subject, which demands more of our thought, inasmuch as the welfare of our posterity and our wives is so dependent upon a better understanding of the length of the time that the gonorrheic is a source of danger to the female. We urologists today withhold our permission for matrimony for twelve months following the disappearance of every clinical manifestation of the disease. If the infection has traveled into the posterior urethra and prostate eighteen months should be the time limit before marriage is permitted. This may be slightly over-cautious, but it is far better this way than running the chance of conveying the disease to mother or child, or both.

By uncomplicated gonorrhea is meant the limitation of the infection to the anterior urethra, without any involvement of the deeper structures of the penis, such as cavernitis, spongeitis, phymosis, or paraphymosis. That it is impossible in certain cases to confine the disease to the anterior urethra is well recognized. Fortunately, these instances are very uncommon, and are due to a high degree of virulence of the organism or a lowered resistance of the host. There can be no doubt, however, that the complications incident to the Neisserian infection, especially the extension to the posterior urethra, are in a large per cent due to maltreatment or delayed treatment.

All the cases herein reported were seen within seventy-two hours after a discharge was first noted. The sooner the treatment can be begun, the better the outlook for an early clinical cure. Records of most urologists show that sixty per cent of the acute anterior infections, if gotten within the first twenty-four hours following the beginning of the discharge, can be cured in five to ten days. In this series of 200, 122 cases began treatment within the first twenty-four hours, of which 72 cases showed no discharge after ten days, and the urine remained clear and free from shreds. The remaining 128 cases were clinically cured in from three to twelve weeks. In not a single case were there any subjective symptoms other than slight irritation incident to the acid urine, which was promptly relieved with bicarbonate of soda.

In instituting a systematic routine coincident with the local measures, great stress should be laid upon the general hygiene. As much rest as possible should be advised, the ideal condition be-

ing confinement in bed, which, of course, is impractical in the majority of cases. Avoidance of strenuous physical exertion should be insisted upon. Naturally, sexual excitement should be avoided. This is seemingly superfluous advice, but not infrequently will be found of value. The bowels should be well regulated. An accumulation of feces in the rectum invites extension of the organisms invading the anterior urethra.

The diet does not influence an anterior infection, but alcohol in any form should be strongly interdicted. From fifteen to twenty glasses of water in the twenty-four hours should be taken, the rationale of which is self-evident.

Most urologists today agree that the time-honored custom of prescribing the various balsams, copaibas and sandalwood oil is obsolete, No good is accomplished, and often severe gastritis and renal irritation are produced.

Gonorrheal urethritis is a local disease, and the treatment that is most effectual is directed toward the urethra. Personally, I feel that instillations have a distinct advantage over irrigations, and I am convinced that in the hands of the general practitioner the latter procedure is a big factor in carrying the infection into the posterior urethra. In hyperacute virulent infections it is unwise to begin medication of the urethra until the swelling and edema have subsided. This is best accomplished by soaking the penis more or less continuously in very hot water. This procedure is of value just before each instillation, as it promotes absorption and penetration of whatever medicament is used.

The ideal drug for combatting the Neisserian organism would be one that is strongly germicidal, highly penetrating and non-irritating. Albargin, a German albuminoid salt of silver, comes nearer filling this requirement than any other. Its superior penetrating and germicidal properties have been frequently demonstrated experimentally, the most recent work being that of Clark and Wylie, of New York.

In the method that I employ the drug is in the form of a semi-solid or ointment, which melts at body temperature. The base of the preparation is gelatin and tragacanth, and a small amount of glycerin for its hygroscopic influence. The preparation as put up by my druggists, Dinett and Delfosse, of Chicago, is in glass tubes, the

tip of which is conical, thus combining urethral syringe and medicament.

Ointment applications to the urethral mucous membrane are by no means original with the author. Young, of Baltimore, employed it many years ago in chronic inflammations of the urethra. Karo, of Berlin, is, I believe, the originator of the tube treatment of acute gonorrheal urethritis. It was at his clinic that I became convinced of the efficiency of this method. Instead of the original Karo tube, made of a collapsible material, glass has been substituted. The reason for this change was because of the metal occasionally becoming corroded by the silver.

This method of urethral medication has the advantages of cleanliness and ease of application, inasmuch as syringe and medicament are combined. In addition, and of greatest importance, a quantity of this semi-solid material will cling

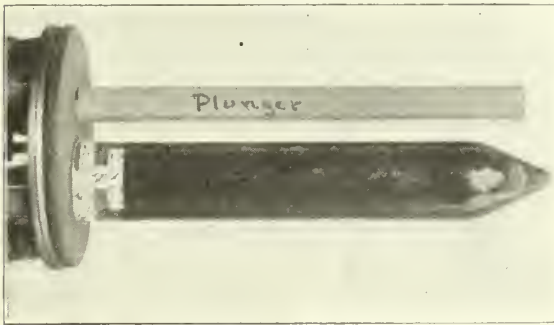


Fig. 1. Syringe Containing Medicine.

to the mucous membrane, while a liquid will all be expelled as soon as the meatus is released. This is a distinct advantage, since it is quite natural that a greater efficiency from medication is to be attained the longer the medicament bathes the inflamed tissue.

To summarize:

1. Acute gonorrheal urethritis in ninety-eight per cent of the cases, if gotten early, can be confined to the anterior urethra.
2. Sixty per cent of the cases can be cured in five to ten days, if treatment is begun within twenty-four hours after the discharge first appears.
3. Albargin in ointment form is most efficient in combatting the urethritis of gonorrhea.
4. Gonorrheics who have had anterior urethritis only are a source of danger for twelve months

after every clinical evidence of the infection has disappeared.

25 East Washington Street.

DISCUSSION.

Dr. A. F. Wilhelmy, Decatur: These cases have been the bane of our lives. I have always believed that the less you did with these cases the first twenty-four to thirty-six hours, or even forty-eight hours, the better they got along; during, at least, the most acute stage, they should not be disturbed.

Dr. H. C. Fairbrother, E. St. Louis: This paper is interesting, and this new mode of treatment interesting, on account of the wide-spread prevalence and disastrous effects of this disease. The gonococcus, and its neighbor, the spirochaete, are the great depopulators of the human race and the destroyers of much human happiness. We hear of a wedding and a few months afterwards we hear of an operation for "appendicitis." The doctor only knows what the matter is. He never tells that it was a pus tube, but a life of sterility tells the sad story.

Now, any remedy that proposes to shorten the time and render more certain the results will be hailed with delight by the profession. I have long been inclined to instillation over irrigation, although admitting the fact that irrigation is the now popular method of treatment. If this instrument and this medication prove what it promises to do it will be a great boon to humanity.

Dr. Irvin S. Koll, closing: I will try to answer just a few questions that were put by the gentlemen who were kind enough to discuss the paper.

In regard to albargin and the other silver salts that have been used, experimentally the greatest efficiency has been proven to be in albargin. Now, we must remember, however, that there is a wide range of difference between our results in the test tube and our results in the infected individual, and yet we have to make our clinical deductions from what we discover in the laboratory, within, of course, reasonable limitations. Argyrol is a drug that has been proven to have no effects whatever in strengths less than twenty to twenty-five per cent., as far as its germicidal property upon the gonococcus is concerned. A twenty to twenty-five per cent. solution of argyrol has a very high specific gravity and also makes a very expensive preparation to use, aside from the disagreeable staining properties on the clothes. Albargin has been shown in strengths of from one-half to two per cent.—the tubes are in one per cent.—to have the greatest efficiency as far as penetration of the tissues, and this is an all-important point as regards our entire medication of the patient for gonorrhea. You must take into consideration that the gonococcus rapidly invades the submucous tissues, gets into the millions of Littre glands with their ducts going down deep into the submucous connective tissues. If the bacteria were all on the surface, it would be the simplest matter in the world to eradicate the disease, because the

gonococcus outside of the body is more easily killed than most any of our pathogenic organisms. Ordinary boric acid will readily kill them; sunlight, drying them in the air, will dispose of them; but when the diplococcus burrows down into the submucous tissue and into the glands of Littre, and you cannot get at it, then you must have a drug that has a high penetrative quality, and though albargin is far from the ideal or what we would have it, it is the most efficient drug that we have at our disposal. In the tubes it is one per cent., with about one-half of one per cent. glycerine to increase its penetrating power.

In regard to the so-called "bane of our existence," the individual who goes on and on and on, with a discharge that stops and he is all right, then he drinks a glass of beer and it starts again, a little sexual excitement and it starts up again: Don't forget that every urethral discharge is not gonorrheal. There is only one way, however, to tell, and that is the microscope, and then sometimes we may have difficulty in differentiating because there are other organisms that morphologically resemble the gonococcus. I speak of the diplococcus catarrhalis, first described in the urethra by Ayres, of New York. That is a Gram-negative intracellular organism, and very frequently you will have difficulty in differentiating that from the gonococcus. It can only be done absolutely by means of the fermentation of sugars, which, of course, is impracticable for office use.

I have the patient use these injections according to the acuteness of the disease. In very acute conditions, for the first day or two, if there is a lot of edema, the less there is done the better for the patient. In the subacute stages I have been having the preparation used three to four times a day.

HOBBIES.*

H. C. BLANKMEYER, M. D.,
Springfield, Ill.

It is not my intention to praise the hard-worked, patient secretary, nor to attempt to right the supposed ills of his office, but I must mention my appreciation of the courtesy of the program committee in simply asking for a paper on a subject of my choice without regard to what really should be said in accordance with precedent firmly established many years. In choosing this subject it is my intention to use the word advisedly for, in some instances, a shorter and uglier word would perhaps be more fitting. I am re-telling an old story, but one which is familiar to all, as it will be to our children, yet

nevertheless more or less true and to some extent amusing.

The secretary of a county medical society is a fortunate person in that he has as much work to do and as many privileges as a second lieutenant or an army mule. He is well cared for, is a necessity, and a fine fellow in the full discharge of what is required of him. In fact, he does as he is told to do, regardless of conflicting emotions or his inclinations. Such is the graphic picture of what a secretary is commonly supposed to be. Nothing could be farther from the real truth, if that secretary has a "hobby."

A "hobby" has been defined as something you can ride with no difficulty once you get firmly seated, and what a pleasant outing any secretary may have if he possesses a pair of rose-colored glasses and makes use of them. No man in the society is so well situated to enjoy the privileges the constitution and by-laws afford him if he wishes to. It is more real pleasure to be the servant of the president of a county medical society than that afforded by a retainer fee for an expected confinement.

Did you ever sit, smoke and think of your society as a whole and begin an analysis of its individual members and their peculiarities?

If you never have the best part of your life is immediately before you. It is the best sedative for a nervous tension yet discovered and it is to be deplored that our neurasthenic patients are not eligible to the office.

You will find more nucleated views among men of brains than it has been your good fortune to note up to the time of your election. Your position is an enviable one and has indeed many compensations.

You will discover the man whose hobby is the dollar and who thinks more of it than he does of the gravy on his vest.

You will find, with little difficulty, the self-considered diagnostician, who will cleverly deduce from a luetic history and an angina pectoris that the patient has a syphilitic gumma of the bundle of His.

The katabolic gentleman who criticises your bulletin will give you much food for thought and you will be able to glory in your advantage to reply to him on paper at your leisure.

It will be a pleasure to you to listen to the "wail" of the man who wants to be president,

*Read at the secretaries' conference at the sixty-fourth annual meeting of the Illinois State Medical Society at Decatur, May 19, 1914.

but can not, and who just to assert his untrammelled independence will stay away from the meetings altogether. His presence at a meeting will tickle your ego and make you think you are a hell of a fellow because you persuaded him to come.

You will be allowed to listen to the fellow who collects ninety-seven per cent of his business, without divulging his system, and he, being older than you, shows what may be possible for you to do some day. At least you will go home and tell your better half that the clouds are at last showing evidence of a silver lining and the note at bank will soon be a matter of history.

The man who collects five thousand the first year will tell you about it good naturedly and you will soon be feeling better than a spring colt. The practice of medicine, in his opinion, is a huge joke and only during the first ten days of the month will it occur to you that he is perhaps wrong.

You will think of the politician. Now he is really good stuff, if you only knew it, for the slate is ever and always in process of being completed and all you have to do to make your influence felt is to get into the band-wagon. I think I ought to pay a little more attention to this member of our society, as he's a real necessity, despite his persistent activity. Have you ever noticed a figure-head in the chair, who awaited the summons of his "boss" before deciding that the man who has the floor is out of order notwithstanding the ruling of Mr. Roberts? From your vantage point you are silently learning the fine points of the game for nothing, which is something you did not learn when one of the common horde.

The member who makes eighteen calls before noon, and at 8:00 P. M. has yet ten to make, confides in you, when you call to see him, that business is good but collections are only fair. However, they have been pretty good for the past week and that if this lick keeps up he probably will send you a check for his dues about the 15th.

The man who has just completed his one hundred and fiftieth laparotomy, without deducing any conclusions other than it is dead easy to be a Mayo, will make you feel good until you meet up with the man who has done a thousand, when you're quite content to be a pediatrician

or an obstetrician and let the real surgeon do your heavy work.

You are introduced as our "efficient" secretary, whom every one in a dozen surrounding counties knows personally or by reputation and as one of the main factors in keeping the society alive. Occasionally you get to become known as our "perpetual" secretary on account of your willingness to do the work no other member cares to do.

Most certainly you are well paid by the pleasure it gives you to jot down the various excuses handed in temporarily in lieu of dues. This part of your duty teaches you more real inside information about human nature than all the dispensary work and "dead beat" patients you have had.

The man who says "The dues are not payable until April, are they?" you can put down as the one who considers you a good fellow and will never take you seriously, as no secretary ever should be taken, for that is part of his official sunshine.

The member who asks, after reading repeatedly in the Bulletin your appeal for money, "When are the dues in order, Doctor?" is the one whose vote you may count upon with certainty at the next election. He likes you and is sure you understand that his bank account is low and he feels you will not suspend him when the time comes.

Moreover, as a member of the program committee, you have the delightful privilege of turning your fire upon some member whose attitude has impressed you with the idea his "ego" needs pruning and you put him on just to show him what a "drawing card" he is among his fellow practitioners. The result will develop without any further effort upon your part and you are praised for your diligence in trying to make the meetings interesting.

The president consults you on parliamentary rulings and if you advise him incorrectly, he gets the blame and you can smile with the rest.

A thorn in the side of the committee on ethics is the man who is exceedingly fond of the press notices given him frequently in connection with some very common type of injury, but so far as the laity is allowed to know, the result was brilliant. This man meets you with the blasé air of "injured innocence" and tells you how often he

has requested the editor to refrain from mentioning his name, in spite of which a friendly feeling between them maintains the practice, while the younger and hard-pressed member will ask your opinion and tell you what he intends doing if this form of "charity" advertising is kept up. In this case you are, without any effort, the means of making both sides feel relieved after the explosion.

As an innocent bystander you ought to be able to enjoy very much the squabble between those who do contract practice and the "antis." This is a never ending source of amusement because no definite solution of the matter is ever reached. A meeting devoted to a discussion of this subject will be the one bright mark in your record of attendance, which end-result we, as secretaries, are all united upon.

As secretary you are supposed to know intimately every member upon your books, which gives you the privilege of suggesting to the president the membership of various committees, whereby you are enabled to increase the efficiency of your office, since it is a foregone conclusion that a young man who has never had an office will keenly appreciate any such favors and will do what he is asked. Of course your advice is sought constantly and your society will become more and more your "hobby."

Do you not find it very entertaining to read the excuses given by delinquent members in reply to your yearly letter of inquiry as to why they attended but ten or twenty per cent of the meetings during the year and do you not frequently learn a great deal? This part of your effort to increase the attendance is an interesting investment to say the least.

Imported talent for your programs comes in response to your written invitations and naturally you meet the train and arrange for the entertainment during his stay. You are thereby permitted to become an "innocent, gentle grafter" by being invited to take dinner with the host and his guests and who can deny that it pays to know men well established in our profession? The secretary is always included in such affairs as a matter of course.

You also establish your credit at the bank, which is taking care of the funds of the society, and what is more desirable than the good will of your banker? Through this advantage given

you by virtue of your office you are permitted to renew your personal note as often as desired and in the sum total this item will loom up like ice-water the morning after the night before.

You are the one and only man at the meetings who is being compensated financially for being present and your fifty at the end of the year will erase all differences between friend wife and yourself for the many evenings spent at committee meetings. This of course if you are fortunate enough to be a Benedict.

It will cause you to smile to see the indifferent member, who is threatened with a malpractice suit, "scramble" to the meetings, pay his dues, and get acquainted with the high-brows in anticipation of the need of their favorable testimony. This "scramble" soon becomes a habit and he need no longer concern you in your letter of inquiry at the end of the year.

There is in all likelihood a man in your society who can not be induced to attend the meetings regularly regardless of the program presented, who will tell you that, in his opinion, the society is accomplishing nothing worth while; that the county supervisors' motto is retrenchment when doctors' bills are considered; that the fee bill is a monstrous myth; that the old practitioner is not at all circumspect in expressing his idea of a common case; that the practice of medicine is going to the dogs as rapidly as the progress of the Devil. That man has a latent talent, which you may not have discovered. All he wants is, not to be let alone, but to be given a place on the attendance committee and be recognized at his true worth. He has not a sluggish liver but is simply suffering from the chill of inattention. That man will become an interesting member once given a chance to enthuse.

A constant effort upon your part to make a readable pamphlet of your bulletin frequently leaves you minus what you really prefer to see printed therein, which state of affairs permits you to use the society members to practice upon in perfecting your vocabulary. It is no small accomplishment to be able to express yourself well on paper, which is naturally followed by the same power in extemporaneous speech. This your position as editor makes possible and ought to be appreciated for its worth.

And so it goes on, the minute pathology of

the society, upon close inspection, becomes the gross anatomy, and if, in time, the society becomes your hobby, it will not be long before you become the society's hobby.

THE ILLINOIS SCHOOL FOR THE BLIND
WITH ITS RECORD OF THE CAUSES
OF BLINDNESS.*

A. L. ADAMS, M. D.,
JACKSONVILLE, ILL.

Previous to the year 1830, no special attention had been given to education of the blind in the United States. About this time certain progressive men in the eastern states became interested in the problem and for the first time, the deaf and dumb, and the blind were included in the national census.

In 1832 the New England Asylum for the Blind, in Boston, and the New York Institution for the Blind in New York City were opened. In 1833 the Pennsylvania Institution for the Education of the Blind first admitted pupils. These are known as the pioneer schools.

The Illinois Institution for the Education of the Blind owes its origin largely to the interest and labor of a blind man, Mr. Samuel Bacon. He came to Jacksonville in 1847, shortly after his graduation from the Ohio School for the Blind at Columbus, to seek employment as an instructor in a school for the blind, soon to be opened in Jacksonville. He found the supposed school for the blind was in reality the first hospital for the insane in Illinois, which was then being erected. He remained in the city several days and was encouraged by leading citizens to attempt the establishment of a school for the blind.

Shortly after this he visited Springfield, where the constitutional convention was in session and where he had an opportunity of meeting many of the prominent men of the state.

He left Springfield for Galena, going by stage via Peoria, Hennepin and Dixon. He kept the interest of the blind children on his mind and kept up a vigorous correspondence with their friends.

In the following spring, in April, 1848, he returned to Jacksonville and met those who had

given him encouragement. It was then an organization was created whose object was to gather information to show the necessity of such a school for the education of the blind. Also to open as soon as possible a private school in Jacksonville, where the value of such instruction could be demonstrated to all.

To defray the expenses of this undertaking subscriptions were solicited from the citizens of the town. The returns were sufficient to guarantee the support of the enterprise.

Mr. Bacon was authorized to continue his work of securing information concerning the blind in the state and interesting their friends.

This he did and after many months of active labor and correspondence, during which he visited many counties, traveling on foot, by stage, on horseback, by boat and by wagon, covering over two thousand miles, he secured the names of nearly sixty blind children, many of whom he visited.

On June 5, 1848, a private school was opened with four pupils; Mr. Bacon was retained as instructor. The school was in session seven months.

Of the work done Mr. Bacon says: "The pupils were taught to sing twenty quartettes. The geography was elementary as we had no maps. In arithmetic they were taught all forms of fractions, also cube root; and they were able to solve any arithmetical questions."

Early in January, 1849, these four pupils were taken to Springfield and on the ninth were exhibited before the members of the legislature in order "to satisfy them that the blind could be and ought to be educated."

"An act to establish the Illinois Institution for the Education of the Blind," drawn by Judge William Thomas of Jacksonville and introduced by Hon. (afterwards governor) Richard Yates, was passed on the next day and on January 19 was approved by Governor Augustus C. French.

Considering the interest taken by the citizens of Morgan county in showing the necessity of such a law, it need cause no surprise that the first trustees were Morgan county men and that the location was in Jacksonville.

Mr. Bacon served as the first "principal" of the school at a salary of six hundred dollars per year.

It will probably be of interest to know that

*Read before the sixty-fourth annual meeting of the Illinois State Medical Society at Decatur, May 20, 1914.

Mr. Bacon was instrumental in later years in establishing two other schools for the blind, one at Vinton, Iowa, another at Nebraska City, Nebraska.

Mr. Bacon's term of service was for only fourteen months when he was succeeded by Dr. Joshua Rhoads, a graduate of the Medical Department of the University of Pennsylvania, who had served as superintendent of the Pennsylvania School for the Blind.

His influence was far reaching in establishing good standards for the school during his twenty-four years of service.

While the original title was the "Illinois Institution for the Education of Blind," it has been a school since its inception and its official title now is "Illinois School for the Blind."

Practical knowledge comes to the blind through their hands, their fingers being in effect projections from the brain. It has been found that blind children with kindergarten training more readily receive instruction than those without it, so the kindergarten occupies an important position in the scheme of education of the blind.

The ear, the heart, and the hand are all cultivated in the kindergarten. They even use colors, for many are able to distinguish them. These little ones are certainly happy in their work, but what is even of more importance, their minds are stimulated at the proper time so they may develop in a more nearly normal manner.

The effort is made to have them enter at the age of six years. Following the kindergarten is the primary and grammar school taking eight years and a high school course of four years.

With the use of the Braille slate and text books with raised letters, the blind pupil learns to rely on himself.

Industrial training and sloyd are a part of the system of education from the beginning. Chair caning, broom, basket and hammock making, piano-tuning are learned by many and are valuable even if not followed as an occupation. They "learn to do by doing," as some one has expressed it.

The blind as a class are, as you know, greatly interested in music. All the pupils are given an opportunity to obtain a musical education and they derive much pleasure and profit by means of it.

Included in the regular course is physical cul-

ture; all pupils are required to attend the gymnasium and exercises under the direction of a capable instructor. Those who have not sufficient talent for music to make the teaching of it worth while, are given manual training, while the pupils are required to take the literary course.

No pupils are taken for only special studies. The methods and course of instruction are as nearly as possible the same as in seeing schools, the main differences being the greater amount of time required to get results and necessarily covering less ground in each study.

One handicap is an insufficient supply of modern books because of the cost of production, an ordinary school book worth one dollar and half, when produced in the type used by the blind costs twenty-one dollars.

There are four principal existing types used by the blind of the world, and two used in the schools of this country, causing much confusion and tending to retard the education of the blind.

An effort has been made to have a uniform type adopted.

The leading organization of the blind in this country is known as the American Association of the Workers of the Blind, and is composed of one hundred subordinate societies, from thirty-one states.

At its session last summer in Jacksonville, after preliminary investigation extending over several years, it adopted a modified Braille system to be known as the "Standard Dot System." It will be universal in its application.

During the last year two hundred and twenty-two pupils attended the State School for the Blind and forty-six blind children attended the public schools of Chicago.

The physical condition of many of the pupils, especially those from the larger cities of the state, is much below normal. This may be attributed to their former environment or the disease which made them blind.

Every effort is made to improve their physical condition by suitable work in the gymnasium and an abundance of fresh air, both day and night is provided.

The dormitories never have more than six pupils. The school is divided into seven families, a supervisor being in charge of each family. The supervisor is responsible for his pupils dur-

ing the time school is not in session, the teachers, of course, having charge during school hours.

It is the purpose of the school to have in attendance all children of school age in the State of Illinois, "whose sight is so defective as to bar them from engaging in ordinary occupations, provided they are free from contagious diseases, in general good health, and not mentally defective."

What is the aim of those who are engaged in educating the blind? Professor Burritt of the Pennsylvania School for the Blind in his annual report¹ says: "The aim of education is to prepare for complete living. To live completely means to be as useful as possible and to be happy. By usefulness is meant service, i. e., any activity which promotes the material or the spiritual interests of mankind, one or both. To be happy one must enjoy both his work and leisure."²

This statement of the aim of education implies not only the opportunities for leisure, but for work; no normal person can be useful and happy unless occupied.

So the effort is not only to give them a general education, but to train them as far as possible in some work that will make them wholly or in part self supporting.

Sufficient sight to enable them to get about comfortably *depending upon that little sight* is a great advantage in the problem of self support for the blind.

A record of all pupils on entrance has been kept to determine the amount of vision, if any, the cause of blindness, and the necessity for treatment or prophylaxis in case of contagious eye disease.

This record is of 848 pupils and extends from 1894 to 1913.

TABLE 1. CLASSIFICATION OF THE BLIND ACCORDING TO AGE AT TIME OF ENTRANCE.

Age—	Total
Five years.....	14
Six to ten years.....	213
Eleven to fifteen.....	215
Sixteen to twenty.....	164
Twenty-one to thirty.....	112
Thirty-one to forty.....	51
Forty-one to fifty.....	43
Fifty to sixty.....	17
Over sixty.....	1
Age not given.....	18
Total	848

During the past five years all the adult blind

1. The Aim in the Education of the Blind, O. H. Burritt; Outlook for the Blind, October, 1913.

2. Educational Aims and Educational Values, p. 5; by Paul H. Hanus, assistant professor of the history and art of teaching, Harvard University.

are sent to the Industrial Home for the Blind in Chicago, excepting those who desire to learn to read and write the Braille, or who wish to learn piano-tuning.

TABLE 2. THE DEGREE OF BLINDNESS.

		Pct.
Totally blind.....	231	27
Light perception only.....	284	33
Nearly blind.....	159	18
Useful vision.....	171	20
	845	

By "useful vision" it is not to be thought that there are seeing pupils in the school. By it is meant those having vision enough *by using it* to get about with comfort, yet have not sufficient sight to get an education with ordinary print.

Some of this class, although able to see ordinary type at close range, should not use the eyes because of some diseased condition of them making such use hazardous, as in high degree of myopia and choroiditis.

The nearly blind are those having vision sufficient to see large objects or may be able to count fingers at one foot, but not able to get about with ease depending upon sight alone.

Each year one or more children appear and are accepted, having one blind eye or maybe strabismus, in whom one eye has normal vision.

In deciding who should be sent to the school not entirely the amount of vision, but rather the final outcome of the case must be considered. If the probabilities are that vision will be lost in a short time, then vision during that time can be used to immense advantage in getting adjusted to the new system.

Those children having scarred corneae, following trachoma and having fair vision, i. e. (6/20), by judicious treatment, may secure vision sufficient to be educated with ordinary print with much less effort, and no especial risk for their vision.

TABLE 3. CONGENITAL BLINDNESS. THIS GROUP INCLUDES THOSE BORN BLIND AND THOSE BORN WITH GERMS OF BLINDNESS ALREADY EXISTING IN THE EYES, BUT THE PROCESS NOT COMPLETED.

Anophthalmus }	13
Microphthalmus }	
Buphthalmus	8
Atrophia nervi optici.....	13
Retinitis pigmentosa.....	7
Choroiditis and choroido-retinitis.....	12
Kerato-conus	3
Keratitis	3
Albinismus	5
Cataract (congenital).....	67
Undetermined conditions.....	12

Total 143
16.8 per cent.

In considering the causes of blindness I have attempted to follow the scheme of Magnus. In

his treatise on blindness among youth, 1886, Magnus confines himself to those below 20 years of age, and analyzes the statistics of 64 European institutions for instruction of the blind. He gathers 3,204 cases of incurable blindness in both eyes. He found 551 or 17.19 per cent were congenital, 1,060, 33.08 per cent due to idiopathic disease of the eye, 261 or 8.15 per cent due to injuries and 1,063 or 33.17 per cent from constitutional diseases.

In attempting to secure information concerning the time of becoming blind, I may have been misled. These were reported by parents or by the pupils themselves as having been born blind. There are several conditions tabulated among the congenitally blind that may have developed in early life.

In the statistics on blindness in Norris and Oliver, Magnus, Trosseau and Oppenheimer, the congenitally blind amounted to about 3 per cent in each, while I have found 67 cases of congenital cataract or over 7 per cent of the total examined.

TABLE 4. BLINDNESS DUE TO IDIOPATHIC DISEASES OF THE EYE.

Ophthalmia neonatorum.....	159	Pct.	17
Ophthalmia (gonorrheal).....	13	..	..
Trachoma (granulated lids).....	56	..	..
Diphtheritic conjunctivitis.....	4	..	..
Disease of the cornea.....	36	..	..
Iritis and irido-choroiditis.....	19	..	..
Choroiditis.....	11	..	..
Detachment of the retina.....	9	..	..
Myopic choroiditis.....	3	..	..
Neuro-retinitis.....	1	..	..
Atrophy of the optic nerve.....	91	..	..
Glaucoma.....	13	..	..
Cataract.....	7	..	..
Undetermined.....	20	..	..
Total.....	442	52	

TABLE 5. TRAUMATIC BLINDNESS.

Direct injuries (of the eyes).....	43	5
Injuries of the head.....	14	1
Sympathetic ophthalmia.....	77	9
Total.....	134	15

TABLE 6. BLINDNESS DUE TO GENERAL DISEASES.

Brain and its membranes and spinal cord.....	45
Measles.....	19
Scarlet fever.....	11
Syphilis.....	4
Typhoid fever.....	10
Smallpox.....	9
Lagrippe.....	4
Spotted fever.....	1
Whooping cough.....	1
Mumps.....	1
Purpuraheim.....	1
Total.....	106
Twelve per cent.	

The number of blind as a result of trauma is 134—15 per cent. 42 or 4.9 per cent lost their sight as a result of direct injury to both eyes.

There were 77 or 9.2 per cent who were injured in one eye and became blind as a result of

sympathetic inflammation developing in the other eye.

14 or 1.6 per cent lost their sight as a result of injuries to the head.

Of the 848 cases of blindness here tabulated, 232 were due to disease of the conjunctiva (27 per cent). Of this number 159 or 17 per cent were due to ophthalmia neonatorum.

Among the last 149 pupils admitted to the school 37 (24 per cent) lost their sight from ophthalmia neonatorum.

In tabulating those blind from general disease I have taken those whose blindness was an immediate result of that general disease.

Without doubt a large percentage of the blindness here attributed to idiopathic disease of the eye was the direct though later result of a systematic disease.

By adding together the 77 cases of blindness due to sympathetic ophthalmia, i. e., where a person was injured in one eye and because of lack of or ineffective treatment, the disease developed in the fellow eye, and the 56 cases of trachoma or "real granulated lids," and the 159 who lost their vision as a result of ophthalmia neonatorum, we have in total 292, or 33 per cent, in whom the blindness could have been avoided.

Aside from these are 56 who were made blind by direct injury to both eyes or the head. Many of these would not have become blind, had sufficient care been exercised in having safety devices used about machinery or protective goggles been worn in doing dangerous work. It is generally known that 40 per cent of the blindness of the world is preventable.

The 77 persons blind from sympathetic inflammation, could nearly, if not quite all have been avoided by the prompt removal of eyes that were sightless and chronically inflamed as a result of injuries or accidents, most of these persons without having had skilled advice, and not realizing the danger they were entailing, having let the precious time slip by when the removal of the injured eye would have prevented the transfer of the disease to the fellow eye.

Ophthalmia neonatorum or disease in the eyes of the new born shows the largest single cause of preventable blindness. And sad to relate this is in larger proportion than heretofore.

This disease is infectious, preventable, and al-

most entirely curable and shows the terrible penalty paid by ignorance.

Before the days of antiseptics, this disease was a scourge and in maternity hospitals as many as twenty per cent developed this disease. In 1880, Crede, of Leipzig, presented to the medical profession his epoch making paper announcing the cure of ophthalmia neonatorum by the use of a 2 per cent nitrate of silver solution, one drop of which was dropped on the cornea of each eye at the birth of each child. After using this preventive treatment, the number of cases developing was reduced from almost 10 per cent to 2 per cent. Furthermore the same treatment carried out where the disease had developed, proved very satisfactory and a large per cent were cured.

At Sloane Maternity Hospital in New York City, among 4,660 births during a period of six years, in which Crede's treatment was carried out there were no cases of ophthalmia.

To understand this disease it seems necessary for me to speak plainly as to a medical audience. This disease is caused by a germ developed in the vaginal canal of the mother and transferred to the eyes of the baby during its birth. This germ is generally the gonococcus and the presence of the disease is usually considered as a proof of immorality of one or both parents. Study of the disease and statistics go to prove that in 2/3 of all cases examined, the gonococcus is found by microscopic examination. In the 1/3, however, the pneumococcus, staphylococcus, and other germs are present.

What can we do to prevent this terrible disease from claiming its victims? I think it is an educational problem mostly. It is only a question of reaching the people, and especially the mothers, and the womens' clubs to get results.

The physicians are doing what they can to give publicity to the facts, but the very people that need it most do not hear their appeal.

There are at least two ways of approaching the solution of this problem. First. Our boys and girls should be educated at an early period of their lives, that they must live clean moral lives throughout. There should be no double standard of morals. Your daughters should have husbands and your sons have wives that are not only free from venereal disease, but the demand should be that they should never have had it.

The lingering effects of the "sowing of wild oats" by young men and boys is the cause of many of these blind babies and invalid mothers. This object to attain may be an ideal, but there is no reason why we should not strive for it.

Second. Measures should be taken at birth to prevent the development of inflammation of the eyes. Microscopic examination of the vaginal secretions of the mother, in suspicious cases before the birth of the child should be made. If germs are found likely to cause eye disease, antiseptic douches should be used to render the vaginal canal aseptic.

We must reach and educate the mothers who do not read the papers or magazines and may seldom employ physicians. A few words at the right time would make them ready for and willing to have the use of the preventive treatment, i. e. (the silver nitrate drops for the eyes, five or ten grains to the ounce), and instead of objecting they would expect that treatment. All regularly educated physicians are taught in the medical schools how to care for these cases. Where there is any doubt about the matter, time should not be lost, but some one known to be familiar with the best methods of treatment should see the patient as early as possible.

Ophthalmia neonatorum should be made a reportable disease as is scarlet fever, diphtheria and other contagious diseases. Every case should be investigated by public health officials to determine whether the infant is properly cared for. If not under the care of a competent physician it should be so placed at once.

In Chicago an ordinance has been passed because of the excellent work of Dr. Willis O. Nance, one of that city's aldermen, which requires the reporting of all cases of ophthalmia neonatorum, by physicians, midwives or other attendants.

Much is expected of this ordinance in results and I hope we may soon see the day when we can have a state law covering the same ground.

What is most needed in Illinois at the present time is a thorough and persistent campaign of education. This must be among the people throughout the state.

To educate and care for the blind is a very necessary and highly commendable work, but far better is it to use every available aid to prevent avoidable blindness.

As has been done in the fight against tuberculosis so we must do to prevent blindness. That is, secure the interest and co-operation of the people of our state, let the real facts become known and much blindness will be avoided.

Adequate and modern laws should be enacted and what is of more importance a large number of interested citizens should see that they are enforced.

Never before has the public taken such an interest in health topics and hygiene as the present time.

The diffusion of information by public lecture and the distribution of literature should increase that interest so that many eyes may be saved and much suffering avoided.

MY EXPERIENCE WITH INTRAVENOUS INJECTIONS OF NEOSALVARSAN.*

E. SARGENT, M. D.

MOLINE, ILL.

Replying to the doubt in the medical literature as to whether salvarsan (the so-called 606) or the neo salvarsan (the so-called 914), one or the other or neither should be used in the treatment of syphilis and as to whether, when used, it should be used intramuscularly or intravenously, I present this paper and wish to record a vote for the use of neosalvarsan intravenously.

I have made special effort to prepare myself to give these intravenous treatments correctly and in addition to my own patients I have given them for eight other physicians and with such excellent results and such freedom from ill effects that I feel it worthy of consideration. In all my work I have used Wassermann test liberally. All the injections except on one case in the hospital have been given in my office in afternoon or evening and patient has gone home immediately on car and kept quiet, eaten little supper, and retired early in the evening and all were ready and able to go to their usual work the next morning without any ill effects whatsoever. There is one exception to this. A man who suffered no ill effects after the first injection did after his second injection. The second injection was the same sized dose as the first, but contrary to orders he ate a big supper and went out and

drank beer till midnight and was sick therefrom for a week. The blame for this misfortune I place in the proper place, I am sure. This man, however, was not feeling exceptionally well at the time of the injection, although he had worked all day and the diagnosis of any particular trouble was impossible.

First: As to whether either one of these preparations should be used. There is no doubt in my mind that both salvarsan and neosalvarsan are valuable additions to our list of drugs in the treatment of syphilis. This is shown so well by one case suffering with mucous patches of mouth and throat so that he could hardly eat or swallow and could not speak above a whisper and who has had liberal mercurial treatment and who cleared up completely in twelve days after his first small injection of neosalvarsan.

Second: As to which, salvarsan or neosalvarsan should be used: I favor the neosalvarsan. It may be true as some state that one dose of the former gives better results than three or four of the latter, but I think it is also true that the former is much more liable to serious results, and as it is so embarrassing to have a patient become very ill and perhaps die following a treatment, I would use that which is comparatively safe even though it must be repeated more often, and the fact that such excellent results can be secured by the neosalvarsan shows that it is not without its merits. Used intravenously, salvarsan seems more liberal to injure and clog a vein, as complained of by one writer from Kansas City.

As to the value of the so-called sero-salvarsan intraspinal treatments, I have had no personal experience, but I believe it possible to get good results in syphilis of brain and chord by simple intravenous injections. This is shown by the following case, in which I began treatment on December 27, 1913, with a diagnosis of gumma of brain. He was in the hospital, unconscious, paralysis of entire left side including tongue, pupils dilated and inactive, involuntary evacuations of bowels and bladder. Improvement began three or four days after the first injection of neo-salvarsan and continued steadily. In a few weeks he was able to use his arms quite well and able to walk, and soon left the hospital. He very soon afterwards showed some control of evacuations, pupils regained proper size and activity

*Read at the sixty-fourth annual meeting of the Illinois State Medical Society at Decatur, May 21, 1914.

and he became able to articulate fairly well but with much effort. He is now, after five months treatment, in quite normal condition except that his tongue seems stiff and articulation is very difficult and his mind has not regained its normal strength. I am not expecting much more improvement in him from now on and consider that a certain amount of brain injury will remain irreparable.

In administering these treatments I consider the preparation of the water the most essential part of the treatment and intravenous injections should not be given by any one not properly equipped with distilling apparatus and especially and always with a porcelain filter of some kind. The temperature should be tested by a sterile thermometer and used at twenty degrees C. I use a simple gravity outfit and dissolve the powder in about 240 C.C. of water properly sterilized and always give the injections as soon after opening an ampule as possible. The needles should be especially well made, with

smooth finish, and resharpened every day or two on stone and leather. This makes a clean puncture in the delicate vein rather than any tearing and may account for my freedom from stopping a vein as complained of by some others. I give any number of treatments in the same spot in the same vein and have had no trouble with injury to vein.

In conclusion I would offer the following: First: In the treatment of syphilis use neosalvarsan intravenously, giving about six injections at monthly intervals. Second: Give injections by most improved technique, paying especial attention to details. Third: Direct patient to eat lightly before and soon after treatment and rest quietly for a few hours. Fourth: Never give a treatment unless patient is in good health aside from the disease for which you are giving treatments. Fifth: Give mercury intramuscularly during entire course of treatment. Sixth: Depend on Wassermann test for indications for treatment and of cure.

THE ONLY SURE WINNER TO DATE



—Courtesy of Mr. Bradley and The Daily News.

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SEPTEMBER, 1914

Editorials

PROCEEDINGS OF MEETING OF ALIEN- ISTS AND NEUROLOGISTS.

The proceedings of the meeting of Alienists and Neurologists will be published in a special edition of the *JOURNAL* in October. The papers and discussions of this meeting contain invaluable contributions to the literature of the cause, cure and prevention of insanity, feeble-mindedness, crime and mental degeneracy and the publication will be invaluable for the medical man, judge, lawyer, humanitarian and social worker. No library on these and allied subjects will be complete without this work.

Subscriptions may be sent to the office of publication, 3338 Ogden avenue, Chicago, by money order or check on Chicago banks. Price \$2.00. If out-of-town checks are sent, add 10 cents for exchange.

THE HARRISON ANTINARCOTIC BILL.

Saturday, August 15, the United States Senate finally passed the long-discussed and much delayed Harrison Antinarcotic Bill H. R. 6282). This bill was passed by the House of Representa-

tives in July, 1913, and has been pending in the Senate ever since that time. It is now in the hands of a conference committee, consisting of five Senators and three Representatives, and it is highly probable that within a few days this committee will have agreed as to the few points of difference between the House and the Senate bills and that it will be signed by President Wilson. It is known as an administration measure, and it is hardly likely that there will be much further delay in its becoming law.

The bill provides, among other things, for a complete record of the sale or disposition otherwise of all narcotic drugs, including opium and its alkaloids, compounds and derivatives, and of coca and its alkaloids and derivatives from the time they are admitted into this country until they reach the final purchaser. Everyone who deals in, markets, or handles these substances in a professional way must take out a special license from the Government, the fee for this license, in the case of physicians, dentists, veterinarians, and pharmacists being \$1.00 for each person or firm. Every dealer who purchases any of these goods from any other person will be compelled to make out his orders on a special serially numbered blank supplied by the government, so that all orders can readily be traced by federal officials.

The retail pharmacist can dispose of these drugs only upon the prescription of a physician, dentist or veterinary surgeon, and he must keep such prescription for a period of two years. As will be readily seen, this will work no hardship whatever upon the drug trade, since every reputable pharmacist already is accustomed to preserve prescriptions of this character.

The pharmacist is also permitted to sell, without license and without making a record, preparations of opium "which do not contain more than 2 grains of opium, or more than $\frac{1}{4}$ grain of morphin, or more than $\frac{1}{4}$ grain of heroin, or more than 1 grain of codeine, or any salt or derivative of any of them, in 1 fluid ounce; or, if a solid or semisolid preparation, in 1 avoirdupois ounce." A pharmacist may also sell, without license or making record, "liniments, ointments or other preparations that are prepared for external use only," except that the unrecorded sale of preparations of any kind containing cocaine or alpha, or beta-eucaine, or any of their salts, is prohibited even in this form.

As will plainly be seen, the bill is in no sense oppressive to the drug trade, which is given every reasonable privilege and will not be interfered with in the slightest in the performance of its regular duties. Indeed, there are those who believe that the drug trade and the proprietary and patent-medicine interests are treated too generously, inasmuch as the section just quoted, making exemption of certain narcotic-containing preparations, opens the door for the unlimited sale of the so-called "household remedies" containing this dangerous class of drugs, such as the soothing syrups, the opium-containing diarrhea and cholera cures, cough cures, and even paregoric. These may be sold absolutely without restriction by any licensed dealer, in many states even by the ordinary country merchant.

The doctor, on the other hand, is not permitted to dispense, without restriction, doses equally small, provided these happen to be given in tablet or pill form. In other words, practitioners are distinctly discriminated against in favor of the retail druggists and the patent-medicine makers. The medical profession has not pushed its opposition to the objectionable "household medicine" exemption, fearing that such opposition might prevent the passage of an otherwise excellent bill, although its dangers are recognized and were clearly pointed out by Senator Lane during the discussion on it in the Senate.

Under the circumstances, therefore, it was somewhat surprising to find one branch of the drug trade, represented by the National Association of Retail Druggists, strongly aligned against the medical profession and demanding that this bill be so modified as to put oppressive and dangerous restrictions upon our profession.

The retailers caused to be introduced in Congress amendments to the Harrison bill which, if passed, would have made it illegal for the physician to give any narcotic drug without a prescription unless he administered it in person, with his own hands. These amendments would also compel every physician to make a complete and elaborate record of every dose of a narcotic drug which he might administer to a patient, no matter how small, no matter what the emergency, no matter what the conditions. He was to be compelled to keep a book in which every hypodermic dose of morphia, every local application of co-

caine, every diarrhoea tablet which he might leave with the patient or send to a patient for immediate relief should be recorded; failing which, he would be facing the cheerful alternative that, if his records of narcotics dispensed did not correspond with his records of narcotic purchased, he would be subjected to a heavy fine and possible imprisonment.

The medical profession vigorously opposed these proposed amendments, and the United States Senate, in its wisdom, after ample discussion has stricken them out. Consequently, the bill as finally passed by the Senate, is acceptable to the medical profession, while it is sure to be effective in curtailing narcotic abuses.

However, the National Association of Retail Druggists, which happened to be in session soon after the passage of this bill by the Senate, has again shown its determined animosity toward the medical profession by flooding Congress with telegrams (1,500 of these, we were informed, were sent into Washington in a single day), objecting to the removal of the record-provision from the bill and demanding changes limiting medical initiative. It is significant that all the demands made by the Druggists' Association centered upon the application of this bill to the medical profession. In other words, our druggist friends have shown great zeal and strenuousness in reforming the physician, and reforming him in such a way as to help their own trade. No such zeal has been exhibited by them in attacking legislatively well-known and manifest irregularities in drugstore practice.

It is hardly necessary to say that tactics of this kind will not be received with favor by medical men. They will not serve to draw the two professions closer together; rather, they will only serve to broaden the present unfortunate gap between the doctor and the druggist and delay the coming of that feeling of generous mutual confidence that heretofore has seemed to be upon the increase, and which is so much desired by us all.

We most sincerely hope for a rebirth of the "get-together movement" between physician and pharmacist, but such a movement, to be successful, must have its foundation upon an anxiety to do *something* for the other fellow, rather than a determination to "*do*" him in some way if he does not contribute sufficiently to the support of members of the sister profession.

The national narcotic law will place considerable burdens upon the medical profession—more, indeed, proportionately, than upon any other class—but it is worth all the trouble it will cost. We ask the physicians of Illinois to give it hearty support.

MR. FOLONIE'S ARTICLES.

Beginning with this number we will have a series of articles written by Robert J. Folonie, LL.B., on Actions for Civil Malpractice.

Mr. Folonie is attorney for the Medico-Legal Committee of the Illinois State Medical Society. He has had a vast experience in this line as legal counselor for other liability and insurance companies, and anything coming from his pen on this subject is considered authority.

We are exceedingly glad to get these articles, and know that the readers of the JOURNAL will be interested in them. Furthermore, we think they will be the means of preventing some of the ever-increasing number of malpractice suits started against physicians.

ACTIONS FOR CIVIL MALPRACTICE.

ROBERT J. FOLONIE, LL.B.,
CHICAGO, ILL.

When a newly built vessel glides down the ways, the ship carpenter takes justifiable pride in the newly born ship and in the consciousness that his work is well done. He knows too, that in seasons to come, the vessel will from time to time return to the repair dock to be overhauled, to have her seams caulked, her hull painted, and rotten planks replaced,—and this, whether or not she has shown signs of weakness. He knows too, that if she meets with stress and strain and her existence is threatened by the elements, that salvors, with proper equipment, will exert every effort to save her; for the reward of the salvor is high.

When a tiny new sail is raised on the sea of life, the physician may be certain that the craft he has helped launch will not return while breezes blow fair, but will come to the repair dock only when seams are sprung, oakum knocked out, or masts carried away. He knows she will be poorly sailed, and badly handled, and if he undertakes the work of a salvor, instead of being doubly rewarded, he often meets the claim that he used—

not a caulking-iron to pack her seams, but a brace and bit to founder her.

One of the most harassing experiences a physician may anticipate as a possible attendant of his profession is a suit for claimed malpractice. The higher his professional ideals, the greater will be his shock and chagrin when the accusation is made. The wider his reputation and the greater his clientele, the more likelihood there is that he will be made a target for such claims.

It is but rarely that the lawyer is sued for neglect of his clients' interests, while the clergyman when sued at all finds the causes in a complete departure from the clerical field into "primrose fields of dalliance."

Physicians are frequently sued for claimed malpractice, and it seems rather strange at first blush that they should be specially selected from among the learned professions as victims of what most often proves to be a mistaken or malicious claim.

The immunity of the lawyer is somewhat difficult of deduction. It may be that the lawyer so frequently has his fees contingent on results that self-interest is presumed to counteract natural sloth, or it may be that the lay conception of a lawyer colors the client's mind to such an extent that he hopes little and expects nothing at all, and therefore may never feel the keen shock of disappointment.

The oriental pays his physician while he is well, suspending all payments during ill health. We occidentals view the matter from an entirely variant and essentially barbarous viewpoint. When well we need no physician and need pay him nothing. If we become ill and recover it is due to personal superiority that disease is overcome. Either we are unusually robust and "wore out the illness" or at a critical point, we used elderberry tea, thought healing or mustard plasters, and at once things took a turn for the better. The ministrations of the doctor had little if any, part in the recovery and there is no reason why he should be paid.

If we do not speedily recover it is the fault of the physician, for we are manifestly different from all other patients—more robust—more intelligent—our ailments more interesting.

If disease is not arrested—or leaves painful or disagreeable results, the physician not only should not be paid, but should be sued for malpractice.

Baseless claims of malpractice most often have their genesis in:

(1) *Ignorance*—Which classes indiscriminately as cure-alls—thought cures, electricity, massage, radium, medicines, X-rays, and spring waters (preferably hot or nauseous); which believes preventive medicine is an interchangeable term for filtered water; which regards the physician as a free public servant, employing the agencies of an Indian medicine man, witches' brews and bottled lightning.

(2) *Cupidity*—Usually coupled with ignorance, and receiving its impetus from the urgings of briefless or unscrupulous lawyers, the jealousy of a fellow-physician, or the prompting of a layman who "was cured of identically the same trouble by Dr. X."

(3) *Delusions*—Either insane or hypochondriacal, leading to more or less logical belief that great wrongs have been suffered, or injury has been intentionally inflicted.

Attempt will be made in future articles to discuss malpractice cases more or less clinically with a view to making clear the causes for their being and the attitude of the physician, with a view to minimizing their number.

DR. FARRELL A CANDIDATE FOR CONGRESS.

Dr. P. J. H. Farrell is a candidate from the 10th congressional district for the Democratic nomination at the primary, September 9.

Dr. Farrell has served the Chicago Medical Society as councilor, secretary and as trustee and in these offices his ability and energy as an organizer and director have made him one of our best known members.

The profession and the medical press have for years been urging doctors to seek public office, where their experience in dealing directly with the people in their homes, in looking after their physical and material welfare, in learning the needs of the community, makes the doctor an ideal representative in the legislative chambers.

The medical profession should have representatives in congress and in Dr. Farrell we have a successful physician, familiar with medical organizations, medical men, their professional and economical problems. A man thoroughly familiar with official life in Washington where he is well and favorably known. He would avoid the

loss of time and embarrassment which is the usual experience of a new congressman, and would lose little time in making his influence felt in congress.

There is no limit to the energy of the doctor. While a surgeon in the army he commanded the first United States soldiers that landed in the Philippine Islands and received from the war department "honorable mention for bravery under fire of the enemy." When San Francisco was destroyed he organized the Chicago Relief Expedition and in 24 hours was on his way to the stricken city with 100 trained nurses and 25 physicians and medical and surgical supplies for 20,000 patients, receiving the thanks of the Mayor of San Francisco and the Governor of California for the help rendered during the two months of dire need. He was one of the original national organizers of the Boy Scouts and last summer he promoted the Boy Scout relay race from Washington, D. C., to Chicago, using more than 2,000 boys to carry the message from President Wilson to the Mayor of Chicago.

Every doctor in Chicago, including, of course, those in the 10th district, which embraces the North Shore and all of Lake County, from North avenue, between Racine and N. Western avenues, and all the territory north of Irving Park boulevard to the Wisconsin State line, should interest himself in the nomination of Dr. Farrell and his subsequent election. He would be an honor to the state, a credit to the profession, a powerful force for the public good.

DR. JOHN P. RIGGS, CANDIDATE FOR CONGRESSMAN AT LARGE.

Dr. John P. Riggs, of Media, Henderson County, Illinois, is a democratic candidate for congressman at large, subject to the primary election on September 9.

The doctors of Illinois should be alert and see that the doctor is nominated. The profession, as well as the laity, need the services of good men in the legislative bodies, and no class of men are better fitted for such service than are the doctors.

TUBERCULOSIS NOTES

Excellent results are reported in the treatment of tuberculosis of the skin, serous membrane, lymph nodes, bones, and joints with heliotherapy, used extensively by Bernhard, of Switzerland.

S. Adolphus Knopf states there are 200,000 deaths in the United States from tuberculosis.

Next annual meeting of the National Association for the Prevention and Relief of Tuberculosis will be held at Seattle during the summer of 1915.

The safe way to escape tuberculosis through milk is to do away with tubercular cows as a source of milk supply. Where milk is not absolutely safe, it should be boiled.

All medical bodies should have a special tuberculosis meeting at least once a year.

Lavenson (Journal A. M. A. April 18) reports on 66 cases undergoing sanatorium treatment. In 12 cases diagnosis made within a few weeks. In 54 delayed from 3 months to 5 years. 72 different physicians had examined these 54 cases. In 13.8 per cent neither physical examination nor sputum examined nor temperature taken. In 52.7 per cent only was a physical examination made. In 12.8 per cent physical examination and temperature taken and no more. In 8.3 per cent temperature alone was taken. In 4.1 per cent physical examination and sputum examined, temperature not taken. In 5.5 per cent patient complained of laryngeal trouble, and only larynx examination made. This may explain the huge mortality figures.

There is no bottle as yet, plain, colored, or cut glass, that contains a cure for tuberculosis.

MEETING OF MEDICAL SOCIETY OF THE MISSOURI VALLEY.

The Medical Society of the Missouri Valley will hold its annual meeting Sept. 17-19, at Colfax, Iowa. The attendance at this meeting is expected to be quite large. The Hotel Colfax will be the headquarters. The program is quite lengthy, and judging from the titles of papers and the authors, the meeting will be one of interest. We predict a good meeting, and hope many of our readers may attend.

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

TREASURY DEPARTMENT UNITED STATES PUBLIC HEALTH SERVICE.

Washington, August 25, 1914.

Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B street, SE., Washington, D. C.,

and at the Marine Hospitals of Boston, Mass., Stapleton, N. Y., Chicago, Ill., St. Louis, Mo., New Orleans, La., and San Francisco, Cal., on Monday, October 19, 1914, at 10 o'clock A. M., for the purpose of examining candidates for admission to the grade of assistant surgeon in the public health service, when applications for examination at these stations are received in the bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work.

Candidates must be not less than 5 feet 4 inches, nor more than 6 feet 2 inches in height.

The following is the usual order of the examinations: 1, physical; 2, oral; 3, written; 4, clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate and that they will serve wherever assigned duty.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists of examination in the various branches of medicine, surgery, and hygiene.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital.

The examination usually covers a period of about ten days.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments.

After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Assistant surgeons receive \$2,000, passed assistant surgeons \$2,400, surgeons \$3,000, senior surgeons \$3,500, and assistant surgeon generals \$4,000 a year. When quarters are not provided, commutation at the rate of \$30, \$40 and \$50 a month, according to the grade, is allowed.

All grades receive longevity pay, 10 per cent in addition to the regular salary for every five years up to 40 per cent after twenty years' service.

The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For invitation to appear before the board of examiners, address "Surgeon General, Public Health Service, Washington, D. C."

Auto Sparks and Kicks

ELGIN'S TIRE STORY.

Tires! Another chapter has been written on them. It was told in Elgin's 2 days of racing.

Elgin this year has demonstrated that there is something more than rubber and fabric in a tire; that the life of a tire depends on many factors, many of which are inherent in the tire and others which are to be found in the car, while others exist in the driver, piloting the machine. The sum total of these three comprise the tire story.

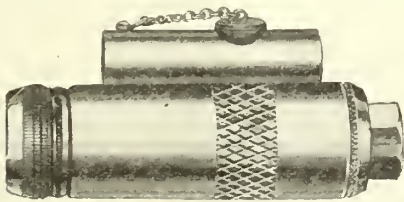
Elgin's race tells us in unmistakable words that the wear you get from your tires depends to some extent on how you drive the car. Do you pick your roads carefully? Do you slow down at the turns? Do you keep the inflation pressure right? If all three are attended to, tire life will be added to.

Go further: Is your car well balanced? Does it hold the road when driving, or leap from side to side? Do your springs prevent too much up and down movement? Is your weight properly divided over front and rear wheels?—*Motor Age*.

PNEUMATIC TIRE DEFLATION ALARM.

An automatic alarm to warn automobile drivers when the air pressure in the tires becomes too low, has been perfected by The Polo Pneumatic Tire Alarm Company of Chicago.

It positively and effectively relieves the automobile driver from all worry over the air pressure within the tires. The alarm tells him in-



stantly when the pressure falls below the safe running point. It is attached to dust cap threads of the valve stem and replaces both valve cap and dust cap.

Inflate your tires to the proper pressure, then attach alarms. They will tell you when the pres-

sure gets down to the point where continued driving would damage your tires.

They can be adjusted to give alarm at any pressure between 30 and 150 pounds.

WASHING CARS.

The ideas in motor car care and maintenance that obtain in a factory turning out 200,000 cars a year, are naturally of some little interest to the motoring public and we are glad to subjoin the Ford formula for washing and polishing cars, as it appeared recently in the house organ of this concern.

"Nothing will destroy the gloss and finish and new appearance of a car more rapidly than an improper method of cleaning.

"Cheap, injurious liquids are too often used in polishing cars, and though they may appear to give a glossy finish at first they only serve to soften the enamel on fenders and body, naturally damaging the finish of the car.

Body polishes containing hydroxides, acids, etc., should never be used, as they are most injurious to the enamel. A good test for polishes which you suspect may contain injurious chemicals may be made with litmus paper, which turns red in the presence of acids and blue in the presence of an hydroxide.

A large sponge tied over the end of a three-eighths-inch gas pipe three feet long, makes a good car washer. The stream should not be too strong, lest it drive grit and sand hard enough to scratch the varnish. The surface should be dried with a piece of soft chamois skin, keeping it well rinsed out, and wrung as dry as possible.

SCRATCH ON VARNISH.

A means of eliminating a scratch on the varnish of a car body that is said to be very satisfactory is to saturate a soft rag in linseed oil, dip it in powdered rottenstone and rub the scratch gently in one direction only until it no longer shows. Obviously this remedy is of no use when the scratch extends through to the wood or to the foundation of the finish.—*Exchange*.

Society Proceedings

ILLINOIS STATE MEDICAL SOCIETY. COUNTY SECRETARIES' CONFERENCE.

Afternoon Session, May 19, 1914.

Discussion.

Dr. Wilbur H. Gilmore, Mt. Vernon: I was asked some few weeks ago by the chairman of this section to deliver a paper before the secretaries' conference, as it is all one big family, of which I am nominally the head, but I have had troubles of my own this year and I told him that what I had to say I could give in the discussion of these papers. I was secretary of a small medical society for several years, four or five, and I thought I had lots of trouble, but I did not know anything about trouble until I got to be secretary of the state medical society, and, believe me, it is no snap.

Now, as far as a message is concerned, I have no message to the members of those county component societies, who always have meetings and have live wires to keep the societies going, but it is for the fellows from societies of less than twenty-five members that I have something to say. There are forty-five county societies in this state that have rosters smaller than twenty-five members. Now, what are your great troubles? I will tell you the first one. The first great trouble is getting the men to attend meetings. I know all about it. I have been there. You can arrange a fine program and maybe you will have a quorum and maybe you will not. You can have some noted man from a distance come in and you get a few more. You go on and on and pretty soon you get discouraged. But I have discovered a secret that makes for good attendance in a small county medical society, and it will do away with more of these petty jealousies, this backbiting, this refusing to speak on the street, this refusing to consult with a man who should be your best friend. It is in a few words, gentlemen, "Feed the brute." If you want to get a good meeting of a small county society, get some member who is a live wire to entertain the bunch; give them a little feed, something to smoke if you so desire, and other things that go along with that sort of program, and you will have from seventy-five to eighty per cent attendance. The Jefferson County Medical Society died a natural death about two years ago. It awoke spasmodically, but it was not until the first of January, 1914, that it really became alive. Since that time this one county society of approximately twenty-five members has been having an attendance of from sixty to eighty per cent and once as many as twenty-five, including guests, were present, and it is because we have been trying this plan of a little entertainment. Every one is on hand, and when you get them there you can get up an interest in the programs. We can live up to all these ideas, but men and women are men and women and you have to appeal to something besides the

intellectual side to keep them on the job, and the way to do it is to have these little lunches. You will find that you will be able to cover up the little bitternesses; get the men out and things will be going swimmingly in a little while.

With the larger societies I want just a word now. That is, when a man moves from your society, report it at once to the state secretary; if you are unfortunate enough to lose a member, report that at once, so that the state secretary can keep his books in some sort of order.

In this connection I should like to say something in regard to the per capita tax. The section of the by-laws that covers the per capita tax can be interpreted in two ways. The trouble is that the words "current year" are not inserted in that by-law. It states in the by-law that "this payment must be made by the fifteenth of April," but it does not state whether it is the current year or the year before. I have found in the one year that I have been secretary of this society that there has been discussion over this matter in various parts of the state. It has cost us some money. A man will say, "I have been accustomed to paying my dues on time," but you will find that he does not mean "current year" and does not think you ought to. Now, something must be done to make that right. It is just as easy for a man to pay his dues on the first of January as to pay them on the last day of December, and he would if he realized how much difference it makes to the secretary. I know what it means to collect dues from your members. A man thinks he is doing you a favor to pay his dues. The only thing is to keep everlastingly after them and, as I said before, feed them something.

Dr. T. D. Cantrell, Bloomington: I am more or less interested, perhaps as much interested in this program as anyone here, and I want to make it a family reunion, because I am the author of the program. I feel wonderfully under obligations to the men that have taken part and helped us with these most admirable papers. I have served my time as secretary of my local society, having served three years, and I believe that is about long enough for any man to serve one society as secretary, and the society believes it, too, and they elected another secretary. So I am going to say a few farewell words. I am in a position, you see, where I can say them and run if they do not suit, because not being a secretary any longer after this month, I will not be a member of this organization; only a visitor.

Now, the president's paper* deals with the most beautiful principles, principles that if they were lived out would solve the problems that are before us as a medical profession, principles that every man needs to have, that every man should try to live up to. That was a most excellent paper, but the secretary as he goes about among his members—and he has to

*Printed in July Journal, page 1

go out among the members, too; if he did not we would not have members very long—comes in contact with a good many things that ought to be removed from the local society and taken charge of by the state society. One battle there can settle what it would take one hundred and two battles and more in the local society, and then it would not be settled. The question is, What cannot a man do and be a member of the Illinois State Medical Society? It is not what a man can do and be a member of, my McLean County Medical Society down there. I have discouraged starting a fight all along these lines; all the time I have been secretary I have been sitting on it, holding it down, keeping it down. The question is, how far can a man go and be a member of the State Medical Society? I don't think we have the worst society in Bloomington by any means. I have visited some other societies. I was over at Oliver's, too, and they have their little family jars over there. Not in Decatur, of course. I know something about the other societies over the state; they are having the same troubles we are having. They have men, as we have, who are doing work for the whole family for \$1.50 a year. We have men, friends of mine, too, just fine fellows, but they can do it and be members of the State Medical Society and of the American Medical Association and of the McLean County Medical Society, and they say, "What's the difference?" We have other members who will do the work for \$2 and include all the visitors. And they are the highbrows, too. They have these things at Peoria also. I won't say as to Decatur, but I know it is so in Bloomington.

Now, that may be all right. Just as the doctor said in his address, it may be that we are up against this and that we are going to have to do contract business. I don't think there is a laboring man in the city of Bloomington today who is not provided for if he cares to accept it. This is going to become a matter of legislation after a while if this goes on. We are going to have in our legislature an insurance act like they have abroad, and then they are going to fix a price on Government doctors. And if we are going to furnish members who will do business for \$1.50 a year for a whole family, what position are we in to go before a legislature and say, "We cannot live on what you fix for us"? "Oh, but you have," they will say. "You have been doing it for that price. Why cannot you do it for the Government?" It does not make much difference to me. It is the younger men who are going to be hit by it. It does make a difference to the younger man, in whom I have so much interest. He is going to practice medicine for a good many years for a livelihood.

I have become convinced in my three years of experience as secretary of the McLean County Medical Society that this matter, if it is ever settled, will have to be settled in the State Medical Society and should not be agitated where one man is the direct competitor of another, because every time you undertake that it is going to breed jealousy and

stir up strife. Why, we have men up there who stand high in the society, who are running cartoons in our papers right along. It only costs them \$20 to get it in. They are members of the McLean County Medical Society. It is not the young fellows who have to struggle for a place; it is the men that are already in the lead in the profession. You find the same thing almost everywhere. Now, we must stand up like men and say, "Well, that may be all right, but you cannot do it and be a member of the Illinois State Medical Society." I want to tell you that when these men feel that they are going to have to step out of organized medicine, that they will not be recognized by the American Medical Association, the Illinois State Medical Society, or their home society, they are going to think several times before they do these things. I may have organized medicine wonderfully magnified, but to my mind it means something to men and let us make it mean more.

Dr. D. D. Barr, Taylorville: In regard to some of the remarks that have just been made it seems to me that there ought to be a different condition of affairs in McLean than there is. In Christian county a little matter came up in the way of contract practice for the county. We have been having for a number of years in our society an agreement that no member of the association would take contract practice for the county. When there was any call for a county case the people might choose whatever physician they might wish and the county pay the same fee that physicians there are paid for ordinary visits or surgical operations. That went on swimmingly until unfortunately one of our members got in a graft proposition and stirred the county officials to a determination to have a contract. I am proud to say that there was not a single member of our county society that would take the contract. They finally persuaded a man who was not a member of our society to take the contract. His health gave way; he had to give it up, and one of our members in a spirit of generosity, as he seemed to think, thought he would help him out. That member was brought up before the next meeting of our medical society and given to understand that such would not be tolerated. He made his excuses, as they usually do, saying that he was told that there were others just ready to take it if he didn't and he thought he might as well have the money. We confronted him immediately with the fact that there was not a single member of our society who had agreed or would agree to take the contract practice. Before we were through with him, however, he gave his word of honor that he would not take or even help out anybody in contract practice after his present engagement was through. I believe he will stick to that proposition.

The point is if the county medical society wants to protect itself it can do it. I believe it would be better, as the doctor suggested, for the state society to lay down certain regulations, but in our society we take the matter into our own hands and take

action and we have accomplished, I believe, a good result. Doctors in our county understand that we will not stand for any such business as that. A little while before, the matter of cartoons came up. One of our doctors started to put a cartoon in the paper. He very suddenly had charges preferred against him, and the following meeting was the most interesting meeting our county society has had, with the fullest attendance. The cartoon has not been seen in the papers since and will not be seen. I think it is a good thing for the county society to have the determination to sit right down on any such action. We perhaps may not have everything perfect in our society. I know we have not; it is not nearly what I would like it to be. Our worst condition is the inability to get the members out and to get them to take part in the way of scientific programs, but we all have that difficulty, and we certainly have some qualities among our members that I admire.

Dr. H. D. Ryman, Mt. Pulaski: I have to make a living out of the practice of medicine; my ancestors failed to accumulate enough of the world's goods to make me independent of my mental and muscular activity; consequently, the economical or business side of medicine means a good deal to me. It does not mean any more to me than the scientific side, and no physician is or can be a true physician who is not deeply interested in the scientific side of medicine; but of necessity, if he is going to accomplish the most on the scientific side, he must pay particular attention to the business side of it, and he must to a certain extent forget that old teaching, that old code about the calling of the physician being one of a charitable or missionary nature. It is a nice thing, it is a beautiful thing to get up and talk about such ideals, but I cannot live on ideals; neither can you. The man who stays at home, who does not take a post-graduate course, who does not attend scientific meetings is getting the obstetrical cases that would come to me, is picking up the surgical cases that would be mine, while I am studying to fit myself to be a better physician. That man is getting the money; I am spending mine. I am getting my value, too. I enjoy it; it does not hurt me to spend it, and when I go back home I feel that I have not done wrong; I am going to go every time I can.

The president, Dr. Whalen, certainly had a very excellent paper and covered the ground very thoroughly, but the fees in the practice of medicine are something that the physician must necessarily think about and the secretaries' society always has more or less to do with it. The relations of the physicians with one another in the community and in the county is very much pleasanter if they can be gotten together frequently. Referring to Dr. Gilmore's remark that he found the best way to get them together was "to feed the brute," I think he learned that down in Marion county meetings at Dr. Rainey's lake. He was put under a tree with a table out in the open, a little lake nearby, in company with a

good many physicians from that part of the state, some men from Chicago, St. Louis and other parts of the country. They all went away well filled in more ways than one. There is no two ways about it; you have got to get after the social side of the physician before you can get the spirit we want and need in our meetings.

Dr. Elizabeth Ball, Quincy: I have been intensely interested in every speaker and in every number on this program, but, with Dr. Cantrell, I feel that we should be considering what stand we will take, providing such a thing as a national insurance act is mentioned or suggested to us. I was abroad during the past summer and found a great deal of dissatisfaction among the physicians of the old country in regard to the insurance act. They are continually bringing up resolutions in their medical societies regarding the acceptance or nonacceptance of some of its rules. I think it is time that we were thinking about these things and getting ourselves prepared for the time when we, as the physicians of this country, will be called upon to face a similar proposition.

Dr. Gilmore suggested "feeding the brute" in order to increase the attendance at meetings. We have a luncheon at every regular session, our scientific programs are varied, sometimes given by men from other cities, sometimes by the members, yet it seems impossible to arouse some of our members and make them take an interest in their county society, so I should like to know of some new methods.

Dr. Charles J. Whalen, Chicago, closing: I have nothing further to say except to emphasize what the doctor at my right (Dr. Ball) has just brought out and what I did allude to rather strongly in my paper, viz., that the conditions that I told you about are here to stay and that you might just as well prepare to meet them. Conditions in this country will be just as bad in the course of five years as they are in England and Germany at the present time. The national insurance act will be extended to America and it will affect the physician here just as seriously as it is now affecting physicians of the old world. It is my belief—as I stated in the paper—that we are all confronted by state medicine; we are all to be put on the payroll of the state or municipality and at a not far distant date. What our compensation will be from the state is best illustrated by what municipalities and states are paying their physicians at the present time. For instance, the health department of the city of Chicago, I understand, for years paid its inspectors \$66 a month, the inspector to furnish his own automobile, equipment and upkeep. This gives you a beautiful illustration of what we are coming to if we do not get together and take time by the forelock.

Dr. Charles W. Carter, Clinton, closing: The problems before the county medical societies appear to be very much the same all over the state. But from what we are hearing here today it appears also that the societies in the larger cities have to deal

with some very serious problems that are not known in the smaller societies. The DeWitt County Medical Society is small—only twenty-four members—and sometimes we think we do not amount to very much. But I want to tell you that we do not have one member that stoops to such depths in fee cutting as has been mentioned here today or that would accept family practice on any such beggarly terms as is reported from some of the city societies. And what is true of our little society I am very certain is true of the other rural societies. It makes me think that perhaps after all the rural society is the saving element in the field of medical practice. It may be that in the city our profession must look, as do other professions and other businesses, to the country for new life and new vigor, and stability and strength, and the little county society may, after all, be doing a very much greater work than we suspect.

COOK COUNTY.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular meeting, held February 17, 1914, with the president, Dr. Otto J. Stein, in the chair.

EXHIBITION OF CASE BY DR. SHAMBAUGH.

A little girl, aged eleven years, general physical condition well developed. Child apparently very alert mentally but presenting as a most marked physical characteristic a perfectly flat nose, of which there appears to be no elevation of the bridge and no cartilage formed in the septum. There is no defect in nasal respiration. The child was referred because of suspected adenoids, for which she had already had an operation. In neither parent is there any suspicion of lues, and in neither family are there any hereditary defects. The child present also, in addition to the facial defect, a good many mental deficiencies, about which Dr. Shambaugh requested her teacher to make a statement.

STATEMENT OF THE TEACHER.

The child first came under the teacher's care about nine months ago. The teacher discovered that she had had some previous instruction and was able to read on three or four pages very quickly, because she had committed these pages to memory, although she did not recognize a dozen isolated words. The process of teaching the child was very slow, yet in the course of the few months' instruction the child now knows about three hundred words, learned by the word and sentence method. As far as reading and spelling are concerned, she learns as quickly as a slightly subnormal child, but in mathematics she is very deficient and has not got beyond a realization of five. She writes fairly well for a child of five or six, although she is much older. Her mental development is perhaps five or six years behind. The teacher states that the child did not grow physically for four or five years; did not walk until she was

four, nor talk until she was five or six. She has a rampant imagination and relates exaggerated stories, apparently thinking them true. One cannot rely at all upon statements which she makes. She has been well trained at home about her person, but associated with her in the school was a boy who had not been so trained, and when the girl learned what a commotion his neglect produced she began the same thing, but very quickly was brought to check this habit by restraining her from going out.

DISCUSSION.

Dr. J. Holinger said that the child presented by Dr. Shambaugh shows a number of characteristic features: The low nose, the nasal bones being hardly raised above the plane of the face, causing the tip of the nose to be tilted upward. The glabella is deep, which makes the eyebrows hardly project over the eyes. This, together with other features, drew attention to the thyroid. The part above both sternal ends of the clavicles appears sunken; you cannot feel any lobes of the thyroid. Over the trachea you hardly feel a trace of an isthmus of the gland. There is a deficiency of thyroid gland tissue.

Furthermore, there are a number of other symptoms in the case that point to defect of the thyroid. Early ossification of the base of the skull causes the very narrow antero-posterior diameter at the base of the skull and explains the deep position of the glabella. The sutures on the top of the head cannot be felt, though in a child of the age of this one you would expect to feel a distinct elevation. Furthermore, he referred to the peculiar dry and scaly condition of the skin. Another point that is often mentioned in this connection is the thickness of the lips. Around the mouth the myxedema is more pronounced, but it is noticed to some extent over the whole body. Another point is the condition of the little girl's hair. It is coarse, sparse and very dry.

Dr. Holinger thought it certainly would be advisable to start in with systematic medication with thyroid gland and watch the result. These experiments, especially in children, have been made very extensively in Switzerland. The speaker followed up the literature of those experiments very closely, and would be very much mistaken if some result did not follow in this case if systematic medication with desiccated thyroid gland were instituted.

Dr. George W. Boot thought the case is undoubtedly one that has some connection with perversion of the function of the thyroid gland. The tongue is large, and protrudes from the mouth a good deal of the time, which is a quite characteristic condition; also the dry, harsh skin. But the child lacks many of the other symptoms of cretinism. He has never seen a cretin so active as this child; they are usually dull and slow. He has had under observation for a number of years an adult with the same characteristics of face that this little girl has, namely, a deficiency of the nose, and the same enlargement around the mouth and tongue. The woman has been a very bright

woman, with nothing strange about her until some five or six years ago, when she had some disturbance in the circulation of the brain, apparently a thrombosis of some of the smaller vessels, and since then she has become a typical paranoiac.

Dr. George M. McBean presented a paper:

VARIATIONS OF SPHENOID SINUS DISEASE.

The essayist said that in studying the atypical forms of sphenoid sinus disease, we must take into consideration the relations of the sinus to the brain and meninges, to the hypophysis cerebri, to the cavernous sinus and internal carotid artery, to the cranial nerves, to the other nasal sinuses and to the nasopharynx. These structures may become associated with the sphenoid in a morbid process due to (a) extension of infection; (b) to exposure by necrosis of its bony wall from chronic suppuration; (c) to invasion of the sinus from the cranial cavity, for instance by pituitary tumors! (d) to irritation or paralysis of the optic, motor oculi or trigeminus nerves or the carotid plexus; (e) to association with the ethmoid in acute and chronic infections, polypi, atrophic rhinitis and atrophic pharyngitis.

Dr. McBean then cited nine cases in detail, giving the following resumé: First, he believes that sphenoidal disease is much more common than was formerly supposed. This list of nine cases in six years' time in his own practice convinces him of its frequency. With more careful post-nasal examinations, especially with the naso-pharyngoscope, many such cases will be found. With the routine use of the probe and catheter more cases will be recognized. The sphenoid is the easiest of all nasal sinuses to catheterize, as a rule.

Headache was the most constant symptom in his cases. Most often it was occipital and back of the corresponding eye. Twice it was frontal (once in a brain abscess case). Pain was absent in an atrophic case. A pituitary case had a pain, "dull and boring, sometimes bursting, in the middle of the head." The typical pain in the occiput is very similar to that of eye-strain produced by ocular hypophoria, and must be differentiated by exclusion.

The eye symptoms were variable or lacking. In some cases difficulty in using the eyes for near work was experienced. In one case there was inequality of the pupils. There was loss of vision in only one case, that of a tumor of the hypophysis, from involvement of the optic nerve. Polypi were abundant in two old multiple sinus cases.

Three of the nine cases terminated in death; two acute cases recovered; three were operated on with benefit or cure, and one case had no treatment.

DISCUSSION.

Dr. L. W. Dean said he had intended to bring a specimen that was of great interest to him—a post-mortem specimen. The patient came into the department of internal medicine in the University Hospital a short time ago with a septic temperature, and the

blood findings those of general sepsis. In addition to these findings, the only symptoms which the patient presented were a slight exophthalmos on the right side, and a marked papillitis of the right nerve-head. The patient was sent down to Dr. Dean's department for examination, and an extensive pansinusitis was found, and a diagnosis made of cavernous sinus phlebitis, probably secondary to the sinusitis. In a few days the patient was so ill that it was impossible to continue the examination of the case, and he died a few days later. Post-mortem examination showed a condition of pansinusitis. In the right sphenoid there was an abundance of polypi. There was a dehiscence of bone between the sphenoidal and cavernous sinus.

Another thing occurred to him in connection with the discussion of sphenoidal sinusitis. Many patients come complaining of headaches at the base of the brain. If we talk to these patients we always find that they do not complain of headache at the base of the brain—it is either back of the eye, or occipital, or frontal, or on the top of the head, but they never localize it right at the base of the brain. It seemed to the speaker that if the patient had anything at all that would cause a headache at the base of the brain, it would be from trouble in the sphenoidal sinus. Nevertheless, experience has shown that these patients when they have a headache the result of sphenoidal sinus infection have a frontal headache, a pain back of the eye, or an occipital or temporal headache. The pain is characteristic in that it comes and goes, is a real pain and is much worse in damp weather than in dry.

Dr. George E. Shambaugh recalled a few of these unusual sphenoid sinus cases. The more usual ones, where the infection of the sphenoid is found associated with multiple accessory sinus disease, either acute or chronic, are by no means uncommon. Of the unusual cases he recalled a woman of perhaps fifty, who was brought to him because of long-standing, severe, unbearable headaches, which she located in the occiput. She suffered from a dry pharyngitis, but no pronounced nasal symptoms. Both nasal passages were found practically normal, with the exception of the recessus sphenoidalis on the left side, where by inspection one could detect the formation of small crusts. Under cocaine the middle turbinate was removed and the anterior wall of the sphenoid sinus was broken away. A large amount of thick, almost dry, offensive secretion was removed. The patient made a good recovery and has had no trouble since, after a period of two or three years.

Another unusual case reminded him somewhat of the case of hemorrhage reported by the essayist. This was the case of a man, about thirty years of age, who had for several years suffered from very severe headache, for which he had consulted a local physician in the country who had found a slight deflection of the septum and had convinced himself that this was the probable source of the headache. The physician attempted to operate on the septum, but severe bleeding scared him away. Later, because of severe

headache, the patient attempted to commit suicide. With a shotgun he blew off his chin. Later he had bone transplanted in the chin, and at that time had the septum of the nose straightened. Ever since the first attempt to operate on the nose the patient had at intervals suffered from very severe nasal hemorrhages. The man was brought to the hospital in a very much weakened condition, and the first glance gave one the impression of a man suffering from the cachexia associated with malignant disease. In examining the nose one could recognize in the region of the recessus sphenoid-ethmoidalis a little pulsating mass, which the speaker diagnosed as a probable malignant growth. There were no eye symptoms. After a few days the patient died, following a hemorrhage. At post-mortem an extensive disease was found, involving the sphenoid and posterior ethmoid region. The roof of the sphenoid had been eaten away and the hemorrhages had apparently come from the internal carotid. The condition was one of sarcoma.

Another unusual sphenoid sinus case occurred in a woman, aged about forty, whose chief complaint was dryness in the pharynx. The patient presented a typical condition of atrophic rhinitis, with crust formation restricted to an area about the opening of the sphenoid. The shrinking of the middle turbinate was such that one could, without cocaine, look directly into the sphenoid sinus. A small amount of pus was coming from this sinus.

Dr. C. M. Robertson said it was hard to distinguish which variations belong especially to the sphenoid and which to the ethmoid sinus. He had observed four cases of a condition which he has not seen described, in which there was bilateral sphenoidal empyema, with bony atresia in the nostrils, which consisted of a solid isthmus of bone between the middle turbinal and the septum. In two cases there was just room over the atresia to pass a probe, and perhaps three or four millimeters of an opening along the floor of the nostril. In the other two the atresia was less in extent.

The first case was diagnosed as a tumor of the brain—the young woman was almost demented. She was in delirium, had hallucinations, and it was feared she would have to be placed in confinement. She had optic neuritis. No papillitis, but there was an optic atrophy in each eye, more pronounced in the right eye, vision being 22/200 in this eye, while in the other it was 20/120 or 20/160—he had forgotten exactly. There was a lack of taste and smell, and she had an angioneurosis in the throat which was very troublesome. One side of the throat would swell up to an enormous size, almost suffocating her, with a bronchial cough and terrific, bursting headache. Dr. Robertson cleaned out both sides of the nose, made her a new nostril, opened up both sphenoids and found purulent material present in both sphenoid cavities as well as post-ethmoidal cells. This case was rather remarkable, because the atrophy in each eye cleared up, so that the optic nerve became

pink, the vessels became normal in size, and the vision came up to 20/20, with a cessation of all of the other symptoms.

The second case was that of a business man, who commenced to have spells that were unfitting him for business. He had false epileptic spells. He would feel absolutely normal, and all of a sudden he would go away, and after a few moments waken up and find people looking at him. He had optic nerve irritation—not so marked as in the first case—but enough so that his acuity of vision was down to one-half normal. He had had these spells on an average of one in twenty-eight days for four or five years. He had a heterophoria, which was treated with prisms, for eight or ten years. He had had muscle operations and muscle exercises with prisms, so that he was an educated eye subject. When the speaker examined him he found a bony atresia, almost similar to the preceding case. After operating upon the nostrils and correcting the atresia, the sphenoids were opened through the maxillary sinuses, which was the shortest route. Finding the maxillary sinus and the posterior ethmoid cells quite hard, he went into the sphenoid, where he found a large accumulation of yellowish, gluey material. From the antrum he went into the sphenoid and from the nose into the sphenoid, then removing the partition between the two routes. About the second or third time he presented himself post-operative he took away a piece of bone about as large as a thumb-nail, and the next time the patient presented himself Dr. Robertson saw a tumor mass extending down into the nose, that looked the size of a normal middle turbinate, occupying about the position of a normal middle turbinate. The mass was movable, and so the speaker snared it off. It was sent to the laboratory and found to be a pituitary cyst. This man was relieved of his symptoms, and up to the present time has been absolutely well.

The third case was one which he was called in to see in consultation. A man who was unconscious, had a very high temperature, with delirium. His eyes were rolling around so that they could not be examined. However, there was a very peculiar odor noticed. On looking into his mouth, Dr. Robertson saw the nasty, brownish, glairy mucus referred to against the posterior pharyngeal wall, and on account of that made a diagnosis of sphenoidal abscess, probably with a brain abscess behind. He was taken to the hospital and operated on the next morning. As the sphenoid was entered a lot of this nasty, sticky fluid came out, and then the curet dropped into the cranial cavity for an inch and a half. All of a sudden there was a gush of blood and chunks of pus. The patient was turned over quickly on his abdomen. In a minute or two the blood stopped and packing was placed quickly. The temperature the next morning was down from 104.5° to 100° or 101°, and the patient was rational. Before this he was absolutely unconscious. The patient died in five or six days. He had a sphenoid abscess that had perforated posteriorly, and had an extradural abscess on the pos-

terior surface of the sphenoid bone. Bony atresia was less extensive than in the former cases.

The fourth case was a similar one to that recited by Dr. McBean, in which the presenting tumor mass was a sarcoma. Those are especially the cases where the discharge is of that peculiar brownish material that is always found in sphenoidal abscesses, even if seen away down by the soft palate, usually associated with necrosis of the bone. They are the worst cases with which we come in contact. This discharge is of the same character as that we get in necrosis of the ear, in those cases where we have nasty, fetid, thin, watery discharges following necrosis.

It seems to him that sphenoid abscess cases are very, very frequent, and it has always struck him that, as the pituitary body lies just above the sphenoid, all these cases of hyper-pituitarism must necessarily at first be from an irritation by an inflammatory product in the sphenoid sinus itself. In many cases of hypo- and hyper-pituitarism we can bring it right down to the sphenoid cells.

Dr. McBean, in closing, said he was very much interested in what Dr. Robertson had said about the dark brown mucus that he finds. The speaker has never found it in his cases, and hopes he never will, if his cases are going to be as serious as those reported by Dr. Robertson. His own cases have been bad enough, but not like that.

He was also interested in what Dr. Robertson had said about the pituitary disease often being from the sphenoid. In one case he had reported—that of the girl with the unequal pupils—he was sure that her amenorrhea which continued some months after that, was not due to anything else, but must have been due to the irritation in the sphenoid, and change of circulation in the hypophysis itself. He did not think, however, he could say that all the pituitary cases are due to that, though he is sure this one was.

Dr. Shambaugh's cases also were extremely interesting. He thinks that most of the dry pharynx cases are due either to disease of the posterior ethmoid or sphenoid.

Dr. David J. Davis presented a paper:

THE ACTINOMYCES-LIKE GRANULES IN TONSILS.

The essayist said that the actinomyces-like granules are commonly found in the crypts of the tonsils. They are in no way related to the true actinomyces. These granules always consist of bacilli, cocci, and spirilla. The bacilli, which were successfully cultivated, belong to the fusiform bacillus group. They are strict anaerobes. They alone are not pathogenic for animals.

The entire granule, when injected into rabbits and rats, readily produces abscesses.

The writer has not been able to find a well-authenticated case of actinomycosis of the tonsils in the literature. It is not meant by this that they do not exist, but if they do they are probably very rare.

These granules are of interest from a practical standpoint, for the following reasons: They are re-

sponsible very largely for the odor of masses derived from the crypts; hence are concerned with the condition of foul breaths. They form a nucleus for the deposition of lime salts, thus being responsible often for the formation of tonsil stones. They often plug the crypts, thereby preventing proper drainage. There are always in these granules streptococci, which may be pathogenic and which may possibly play a rôle in chronic streptococcic tonsillitis.

DISCUSSION.

Dr. George E. Shambaugh considered Dr. Davis' work on the pathology of the tonsils very valuable and a contribution of great interest, especially to those working clinically with diseased tonsils. He has always been astonished in reading the reports of the finding of actinomycoses in the tonsils that these cases presented no clinical symptoms by which this disease could be recognized. Dr. Davis' work clears up the situation by showing that these are not cases of actinomycoses at all. Dr. Shambaugh does not know as yet just what importance to attach to these cheesy plugs so frequently seen in tonsils. They are composed of different sorts of material and often are present without apparently causing any symptoms. In other cases they do give rise frequently to distinct symptoms, such as a circumscribed congestion and soreness in the region of such a plug. There is usually a very offensive odor, of which the patient is often conscious. Apparently there is a certain systemic intoxication produced in some of these cases, possibly because the presence of these plugs favors the development of bacteria at the bottom of the crypts. Very often, too, these patients who have trouble with cheesy accumulations in the tonsils suffer from a great many attacks of acute tonsillitis, which are not only a nuisance, but often a serious menace.

Dr. Otto J. Stein was attracted by this subject quite a few years ago, when the question of tuberculosis of the tonsil was so enthusiastically talked about, with invasion of the deeper structure of the neck. He was frequently astonished by the report in these removed tonsils of the finding of these actinomyces-like granules or mycelial-like bodies in apparently not badly diseased tonsils. In fact, they were found in the tonsils removed from children quite frequently, and at first it was thought that some great discovery had been made, some early sign of the disease of actinomycosis. However, in speaking with Professor Zeit, who examined most of these cases for him at that time, he told the speaker that he placed no importance whatever upon them, and that they were very commonly found in the plugs of cheesy material that were found in the crypts of the tonsils. He expressed at that time and also several times since the belief that these granules might be entirely disregarded. There was another type, however, the true arrangement of the granules, that was associated with this disease, actinomycosis, but in almost all of these cases—in fact, every case—

he had found the clinical findings of disease in the neck or tissues surrounding. The speaker had found a case that he believed to be a true case of actinomycosis of the neck, with the ray findings in the tonsil. The case was referred to him as one very like actinomycosis, and he was asked to remove the tonsils. He is now of the opinion that the arrangement of these granules in the ordinary tonsil, unassociated with any clinical manifestations of the disease itself—actinomycosis—means nothing at all, quite contrary to what Dr. Shambaugh had just expressed.

Dr. C. M. Robertson asked Dr. Davis if he, in his examinations, differentiated between the crypts of the tonsils in which these masses or granules were found, and also if there were any gland involvement in the cases in which they were found, or not?

Dr. J. R. Fletcher asked the members if they remembered when Dr. Grosvenor was here he made an investigation of quite a number of tonsils and spoke of the relative frequency with which actinomycosis was found in those which he had sectioned? The speaker mentioned this because a year or two ago he removed the tonsils from a Sister of Mercy, who was sent to him supposed to have suffered from tuberculosis of the right lung. Dr. Zeit examined a section of the tonsil and he said it was not tuberculosis, but remarked that he had seen all of the Grosvenor preparations, and this one was the most beautiful case of actinomycosis that he had ever seen. He unqualifiedly pronounced it actinomycosis. This patient has gone on for quite a number of years and seems to remain in about the same condition, so far as the tuberculosis of the lung is concerned. Dr. Zeit said that probably she had actinomycosis of the lung also. She had no glandular involvement of the neck that the speaker was able to find. He asked for some expression of opinion from the members.

Dr. Stein asked if Dr. Zeit called it a true case, to which Dr. Fletcher answered yes. He had removed the tonsils by request, as they were manifestly diseased, and the attending physician was fearful that the tonsils might have something to do with the disease in the lung, and that she might, perchance, have a better opportunity to recover if the tonsils were removed.

Dr. Otto J. Stein said that Professor Zeit had no doubt found several "most beautiful" cases, because the speaker claimed the distinction of having the "most beautiful" case of actinomycosis, according to Professor Zeit.

Dr. Otis H. Maclay said that it is well to consider the simple things in tonsil cases, which are sometimes overlooked, namely, the odor and the feeling of fullness in the tonsil. These patients often complain of a feeling as though there were a stick in the tonsil, and there is often a cough associated with the condition, where there is nothing much the matter with the patient—no pain or soreness. When the tonsils are cleaned out, the cough, with the other symptoms, disappears.

Dr. George W. Boot asked Dr. Davis regarding the

bacilli growing in the form of a brush. Was this not an unusual form of growth for bacilli? Just what did Dr. Davis consider the relation between these organisms and the organisms of Vincent's angina?

Dr. Davis, in closing, answering Dr. Robertson's question, said that in these cases where such granules are found in the tonsils, there are no glandular enlargement. It should be remembered that they are found in practically one-third of all adults. He imagined that if he were to examine the tonsillar crypts of every individual in the room he would find them in about thirty per cent. He has found them repeatedly in his own tonsils, and has commonly found them in the crypts of normal individuals. There is, therefore, little or no reason to suspect that there is any diseased condition when one finds them in tonsils.

With reference to the relation between the bacilli and the filaments, it should be stated that the central stalk is made up of the fusiform bacilli growing in long filaments, just as they often do in artificial culture. A bundle of threads may grow out and at or near the ends, probably where the conditions of growth are somewhat different, the bacilli there grow somewhat shorter, and arrange themselves perpendicularly to this central stalk.

So far as their relation to the organism of Vincent's angina is concerned, he could not state that they are absolutely identical. However, he had no doubt but that they belong to that group. There are some slight differences between certain strains of this group, so far as their appearance on culture media, reactions, and so forth, are concerned, just as there are differences between various strains of the streptococcus or typhoid groups. The fact that they are always associated with the spirilla is another point in favor of the idea that they belong to the fusiform group; for we know that the organism of Vincent's angina is nearly always associated with spirochetes that exactly correspond with the spirochetes found in these granules.

Dr. Davis is particularly interested in the question of the relation or, rather, non-relation of these bodies to actinomycosis. He did not wish to criticize Professor Zeit, or anybody else, so far as this particular point is concerned. If anyone has any definite cases of actinomycosis of the tonsil, these cases should be reported, because there is not a single well-authenticated report of such in the literature today. He did not deny that actinomycosis might enter into the tissues through the crypts of the tonsils. He rather thought that they might, because the crypts would be a pretty good place for them to grow, and from there penetrate the tissues; but as a matter of fact, there is no clear-cut evidence of that at the present time.

Furthermore, if anyone had such a case, he should not be content with simply examining sections of the tonsils. No absolutely reliable statement could be made from such examination. The organisms must be cultured and the final proof will rest upon the re-

sult. Any evidence that is convincing must be of that character.

Dr. E. Fletcher Ingals and Dr. Stanton A. Friedberg presented a paper:

FLUOROSCOPIC BRONCHOSCOPY.

Three cases of foreign body removed from the bronchi were reported. The first case was that of a nail in a tertiary division of the left trunk bronchus. The second case was a band of gold that was a part of a crown for a tooth, which had lodged in the upper bronchus of the right lung. It had been present for several years; under local anesthesia it was removed with the aid of the fluoroscope. A third case, that of a boy, aged nine, with a brass bolt present in a cavity of the lower lobe of the left lung for about two and a half years, was also reported. This also was removed under local anesthesia.

A special forceps was used in these cases. It consists of a Krause handle with a simple tube forcep. Its main characteristic is that it is strong and of small diameter and the grasping surface of the blades is cut like a file, with the cutting edge towards the handle.

Special importance is laid upon the necessity of being sure that the end of the forceps is in the same bronchus as the foreign body. When the forceps has been passed down so that its shadow reaches the shadow of the foreign body, the end of the instrument should be moved back and forth laterally to determine whether or not it is in the same bronchus or cavity as the foreign body. If it is in a different tube the shadow of the forceps will pass away from that of the foreign body, but if in the same bronchus, the shadow of the foreign body will move with that of the instrument.

DISCUSSION.

Dr. Otto J. Stein said there was no doubt that the reports of Drs. Ingals and Friedberg showed a distinct advance in the technique of removal of foreign bodies in the esophagus or bronchi. He has had very little experience in this line of work, and could only report two failures. But he believes that the aid of the fluoroscope, if worked out, with proper team work, will eventually lead to the working-up of a special technique that will facilitate removal of these foreign bodies. In one case in which he attempted to use the fluoroscope, a very small child of about eighteen or twenty months, a very fat child, the foreign body (a pool check, round with a square hole in the center) was never found, or, rather, recovered. It could be seen distinctly with the fluoroscope. An attempt to remove it with the ordinary instruments failed entirely, owing probably to the inflammatory exudates that existed around the foreign body, on account of the manipulation that had been done the day before, continuing for some three hours. By the use of the fluoroscope, the foreign body could be seen distinctly, but just at the moment

when the speaker tried to use the fluoroscope and instruments together the child developed a violent convulsion. Temperature was 104.5°, and the convulsion was so violent that he had to desist. A little later the child died.

In another case he attempted to use the fluoroscope, but was again handicapped by very inefficient help. The nurse knew nothing about the work, and there was nobody else at hand, but in this case he believed that if he had had the proper help he would have succeeded in getting the foreign body out, but as it was, he failed again.

Dr. Ingals, in closing the discussion on his part, only wished to urge again that the forceps should be moved laterally and that the operator be sure the foreign body goes with it. If it does not, one is liable to catch the lung tissue. If the foreign body goes with the instrument, it must be in the same tube, and then with care the chances are that the foreign body can be removed. If you have the right kind of a forceps and gets hold of the foreign body, never let go, unless you happen to get hold of the center of a screw, as was the case in one of the cases reported by Dr. Friedberg.

Dr. Friedberg, in closing the discussion, referred to the necessity of an earlier diagnosis in cases of foreign bodies in the lung. It hardly seems reasonable to wait two years to diagnose a metal substance in the lung. In Dr. Ingals' case the foreign body had been in for three years, and in his own case for over two years. The speaker had a somewhat similar case during the past summer, where a tooth had been aspirated and had been present for almost five months, and a small abscess cavity had formed. A picture of the chest revealed the shadow of a tooth. "So, in all obscure lung conditions, where the history is indefinite, a fluoroscopic examination should be made. The earlier these cases are discovered, the less changes of a permanent character are found in the lungs, and the chances of a successful operation are increased.

Dr. Stein asked if it was possible to discover an aluminum foreign body by this method.

Dr. Ingals said aluminum would show if it was very heavy, but light aluminum would not show.

Dr. Stein said the reason he asked was because recently he had a case of an aluminum band, two and a half inches long, folded up, that did not show in many x-ray pictures. The fluoroscope was never used, and he was wondering if it would have shown this band.

Dr. Ingals said he had had a case of an aluminum pin in the esophagus. He used the fluoroscope. At first he was satisfied that there was nothing there, but finally he saw the pin.

Dr. Friedberg had seen a case of an aluminum tracheotomy tube jammed down in the bronchus, which did not show.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

A regular meeting was held March 16, 1914, with the President, Dr. Wesley Hamilton Peck, in the chair.

AN ANOMALOUS NERVE HEAD WITH GOOD VISION.

Dr. Michael Goldenburg exhibited a case concerning which he read a paper at the February meeting on the above subject.

GLAUCOMA AS AN ETIOLOGICAL FACTOR IN INSANITY.

Dr. Carl B. Welton, Peoria, reported the case of Mrs. J. W., aged 69, who was admitted to the Peoria State Hospital for the Insane, December 9, 1912. At the time of her commitment the insanity had been present four months. Her history showed there was no insanity in her immediate family, nor in the family of either parent. She never had any disease of the eyes, and her vision had always been good until September, 1911, when she developed an eye trouble in which the eyes became painful, sensitive to light, and her vision began to fail. This condition of the eyes grew worse until three or four months later; the pain in the eye became so severe that she had to be given opiates continually to relieve her. In April, 1913, when the author first saw the patient, she had recovered her mental faculties to a degree, so that she could carry on a fairly intelligent conversation and could clearly tell the conditions and circumstances of her past life up to the time that she began the use of drugs. She complained of continual pain in the eyes. Examination of the eyes disclosed the typical picture of an absolute glaucoma. Both eyes were injected and painful to the touch. The corneal reflex in each eye was dulled. The cornea was somewhat opaque and its sensitiveness lost, the whole eye being in a state of glaucomatous degeneration. The globes were ectatic, the pigment epithelium of the retina was visible in several places through the thinned and bluish sclera. The anterior chamber was obliterated. The pupils were dilated, unequal in size, the pupillary margins irregular and neither reacted to light nor accommodation. The lenses were partially opaque and no reflex could be obtained from either fundus. The tension taken with the Shiotz tonometer measured in the right eye 70 mm. Hg., that of the left 75 mm. Hg.

An operation was advised to relieve the pain caused by the increased ocular pressure. On May 19, 1913, under ether anesthesia an Elliott trephining of the sclera was performed on each eye. The sclera, which was extremely thinned, was easily pierced by the trephine, the piece removed and a small buttonhole iridectomy made. A prompt recovery followed.

On December 23, 1913, the patient was again examined, and there was no injection of the eyes and no pain or tenderness present in either. The tension was again taken with the tonometer and registered in the right 13 mm. Hg., and in the left eye 55 mm. Hg. Why the patient did not have pain and tenderness in

the left eye, which still registered 55, was, he believed, due to the highly atrophic condition of the eye from the long continued high tension. At least, with this tension still remaining after the operation she had no discomfort nor complaint, and the advisability of a secondary operation was not considered.

Cases of this kind simply showed the necessity of educational work being done by oculists among the men engaged in general practice for the purpose of promoting the earlier recognition of symptoms indicative of a grave eye disease. When a physician was called to see a patient who was having pain in the eyes or in whom the vision was rapidly failing, it became at once his duty to know by means of competent help whether or not he had to deal with a serious disease of the eye.

DISCUSSION.

Dr. L. W. Dean, Iowa City, Iowa, said he had had four rather disagreeable experiences. The first, a patient with frontal sinus trouble, was operated on but no mental disturbance noticed at the time of operation. One morning she was found dead in her room. She had taken a scarf, tied it around her neck, fastened it to a hook on the wall, held her knees up from the floor, and hanged herself in that way.

The second case of insanity was one following operation for strabismus. The patient came to have his eyes straightened before getting married. The second day followed the strabismus operation he became maniacal. He made several attempts to take his life. It was necessary to place him in a straight jacket. He was seen by Dr. Witte, who expressed the opinion that he might become insane at any time. He became insane. The worry of getting married, together with the disturbance of bandaging the eyes following a strabismus operation, also advancement with tenotomy, resulted in his becoming mentally unbalanced.

The third case was a woman who complained of terrific pain in the head and had severe spasm of accommodation. She came from a very fine family. Her surroundings were perfect. She came to Iowa City, was ill at the time, and was placed in a hospital. He did not notice anything wrong with the woman nor did the sister. She went into the bathroom one day, and as one of the sisters did not hear any sounds she peeped over the transom and saw that the woman was trying to drown herself in the bath tub. She was unconscious, but was resuscitated. He was sent for and in consultation with Dr. Hill it was found that the woman was insane.

A fourth case was in the hospital at the present time. She had terrific pain in the head and was committed to the insane hospital. Before she was sent, at the request of the husband Dr. Dean examined her and found that she had neuritic atrophy of the nerve on the side of the mastoid lesion, and before operating he made a diagnosis of extra-dural or brain abscess secondary to mastoid disease of long standing. At the operation he found a very large temporo-sphenoidal abscess. He evacuated fully an ounce and a half of

pus. This relieved the pain. The operation was done six weeks ago and the woman will be sent to the asylum within a week. He received a requisition from Dr. Witte the other day stating that this woman was a typical case of melancholia; that the attack was brought about by infection of the cerebral substance, although the infection could not be considered in any sense of the word as the cause of her insanity. It was simply a contributory factor.

THE FUSION FACULTY AS A TYPE OF FACULTY.

Dr. M. Z. Albro stated that

1. With few exceptions, the fusion faculty developed naturally if it was not interfered with. In the same way we saw the development of the coordinated use of the hands, or of the lower extremities, as in walking, or of the vocal apparatus in the beginning of speech.

2. In a few individuals the fusion faculty does not appear, and cannot be induced to appear by any present known means, even when no obstacle to its development existed. The result was the same as though some nervous structure essential to fusion had failed embryologically.

3. The fusion faculty may appear in early life, but its development might be interfered with by the presence of refractive errors, such as hypermetropia, myopia, anisometropia, astigmatism, by scars of the cornea, by malformations, muscular, ligamentous or bony, or by the results of traumatism or inflammation. When so interfered with, this faculty became latent.

4. When the fusion faculty became latent its potentiality progressively diminished to the vanishing point.

5. Up to a certain age, the latency of the fusion faculty might be overcome, its potential aroused and developed to a practical working force that would then remain permanently established through life.

6. In the secondary development of fusion, the quantitative development varied in individuals, and this variation was strongly modified by variation in individuals in the ability to fix the attention, by the intensity of effort applied, by the degree to which systematic use of time, effort and apparatus could be maintained.

7. Under normal conditions, the fusion faculty reached a working quantitative development early in life, after which it was permanent, and could be disturbed only by influences amounting to violence, either general or local.

8. The amount of power, force, or ability to perform fusion normally developed, varied in different individuals, from zero to sixty degrees, as measured by the amblyoscope. When the total fusion ability amounted to sixty degrees, a part of it was voluntary.

9. The fusion faculty might be voluntarily suspended. The ophthalmologist suspended fusion when he used the ophthalmoscope or retinoscope; the microscopist when using the microscope, and the expert

rifleman when sighting his rifle. This might be called a negative phase of fusion. There was such a thing as true voluntary fusion.

10. Fusion was intimately associated with accommodation and convergence.

11. Distinctly separated areas of the cell structures of the brain must cooperate in the performance of the fusion faculty; therefore, associative fibres connecting these areas must be likewise concerned. Possibly congenital lack or failure of development of certain neurons might account for its occasional omission.

12. We might infer that education did not consist in the training of the eye alone, nor of the ear or hand. Neither did it consist of the accumulation of facts or aggregations of facts, but lay in the development of control faculties, associative faculties.

DISCUSSION.

Dr. J. F. Burkholder, in speaking on the neurology of the fusion faculty, presented a series of twenty-one lantern slides and an hypothesis, as to the localization of the fusion faculty.

The faculty must, of course, be considered as a complicated arrangement of purposeful reflexes, made up of single elementary components with receptors, conductors and effectors; the effectors are the muscles for the orientation of the eye balls.

In considering the neuron tracts from the retina to the extrinsic muscles of the eye, the first locality where a series of possible physiologic associations might take place is the optic chiasma; but in view of the heterogeneous connections that the chiasma makes with irrelative parts of the encephalon, no such purposeful function as the fusion faculty could possibly take place. The constructions and associations of the chiasma were then briefly given as follows:

1. The inter-retinal fibers, called the commissura arcuata of Hannover.

2. The fasciculus cruciatus, or crossed bundle of the ophthalmologists.

3. The fasciculus noncruciatus, or uncrossed bundle.

4. The commissura superior of Meynert, from the nucleus lenticularis to the opposite subthamic nucleus of Luys.

5. Hemispheric bundle of Gudden, from the tract to the hemisphere.

6. Commissura ansata, from the lamina terminalis, to the opposite optic nerve.

7. The commissura hypothalamica, connecting the two subthamic regions.

8. The tractus peduncularis transversus, called also the habenulo-peduncular tract, connecting the interpeduncular ganglion with the habenular nucleus.

9. The commissura inferior of Gudden, connecting the two inferior quadrigeminal bodies via the chiasma.

It is self-evident from this variegated assortment of associations that a theory accounting for any co-ordinating activities would be hard to formulate and still more difficult to defend.

After leaving the chiasma, the next place of importance that must be carefully considered is the colliculus superior, or the anterior pair of the corpora quadrigemina. A series of illustrations showing the evolution of these bodies from the lamprey eel to the pigeon were presented. The development in complexity of the structure of these bodies as the environment of the organism increases in extent, is simply for one purpose, and that is to bring the organism in correspondence with the increased environment. In so low an animal as the lamprey eel you will find an eye and a musculature for the orientation of that eye. In addition you find in the brain a large body, called the optic lobe, to which the optic nerve can be easily traced. In these lower animals there is no cerebral differentiation to receive and interpret impressions of light, so that the perceptions of light as well as the coordinating of the muscles of orientation must take place in these bodies. The histologic structure of the anterior pair clearly indicate that they have very complicated functions to perform. Winkler and Potter give the following stratae as obtaining in the rabbit's colliculi superiores:

1. Stratum zonate.
2. Stratum griseum superficiale (small cells).
3. Stratum griseum superficiale (large cells).
4. Stratum medullare superficiale (optic radiation).
5. Stratum griseum intermedium.
6. Stratum medullare intermedium (lateral lemniscus).
7. Stratum griseum profundum.
8. Stratum medullare profundum (fountain decussation of Meynert).
9. Stratum substantia grisea centralis.

As soon as the geniculate bodies and the occipital cortex begin to develop these quadrigeminal bodies rapidly become smaller and less complex; some of their functions being shifted further back to the cortex.

The same laminated arrangement of structure obtains in the occipital cortex, as is clearly shown by stained sections.

The anterior pair of the corpora quadrigemina are very important bodies, and the integrative activities of the twelve extrinsic muscles of the eyeballs are unquestionably regulated through this optical substation. The coarse adjustment of the eye muscles is regulated by this organ, as it were, while the fine adjustment is effected by the fusion centers located in the occipital cortex.

So long as the animals had only monocular, single vision as in the fishes, amphibians and birds, the coarse adjustments effected by the optic lobes (the anterior pair of the corpora quadrigemina of the higher vertebrates) was sufficient for all purposes; but as soon as the two eyes moved around to the front and binocular single vision became a necessity, a finer orientation or adjustment became imperative. These finer adjustments must of necessity lie in close proximity to the organ of visual sensations and were, as a

consequence, also shifted to the occipital lobe. The very wide and important associations of the colliculi superiores is evident when we consider their remarkable anatomical connections, which might be enumerated as follows:

1. With the retinae by means of the optic tracts.
2. With the occipital lobes by way of the optic radiation.
3. With the mid-brain by means of the fountain decussation of Meynert and posterior longitudinal bundle, thence by means of collaterals to the 3rd, 4th and 6th nerves.
4. With the spinal cord by the fasciculus ventrolateralis profundus.
5. With the lateral lemniscus, via the colliculus inferior, thus bringing the visual apparatus into the association with the cochlear nuclei and superior olivae.

Phylogenetically the anterior pair of the corpora quadrigemina come first, then the lateral geniculate body, and lastly the occipital cortex, and as soon as the two latter structures became active, the corpora quad lost its prerogative as a visual center and retained its coarse reflex functions only. The colliculi, however, retain a remarkably intimate association with the occipital cortex by means of the optic radiation, and this association between the colliculi and the occipital cortex is of the most intimate character. In this radiation we have both corticofugal and corticopetal fibers, so that the associative activities can be regulated with great precision. This intimate association of the perceptual and reflex mechanisms becomes a necessity when we remember the extreme exactitude in adjustment, that the fusion faculty demands. There are two distinct subdivisions in the optic radiation, and one of these is distinctly myelinated at birth and forms what Flechsig calls the optic radiation in the narrower sense; this tract Monakow claims brings the macula in direct association with the cells in the walls of the calcarine fissure via the external geniculated body.

In the occipital cortex you have the same laminated arrangement of its constituent elements as is found in the retina and the colliculi, as already noted. The occipital cortex, however, has more layers than any of the other cortical areas, showing that there is more complexity as to function; this is further emphasized by a distinct separation of the occipital cortex into two clearly defined subdivisions, by the line of Gennari or Vic d'Azyr. It is our impression that these separate subdivisions of the occipital cortex have distinct and separate functions to perform, and we would suggest that one of these has to do with the visual faculty and the other with the fusion faculty. This becomes all the more apparent when we consider the intimate association made possible between the cortex of the two occipital lobes by means of the posterior fibers of the corpus callosum forming what anatomists call the splenium, making the hypothesis that there is a fusion center or faculty in each occipital lobe, associated by means

of the corpus callosum, a working hypothesis based upon demonstrable anatomic conditions.

DIPLOIC ABSCESS.

Dr. George F. Suker said that about a year ago he presented the same patient whom he operated on for what he called a diploic abscess, due to diploic hemorrhages. The young man fell out of a swing several years ago, striking on the right temporo-frontal region. His head was bruised considerably. Several years after this patient noticed a protuberance over the ridge of the right orbit. At the external canthal end of the upper lid a fluctuating mas was protruding. This was a sac which was taken to be a dermoid cyst, as he had several dermoids removed before in other parts of the body. Under local anesthesia he made an incision, got down to the cyst and found it was adherent to the periosteum. He cut into the cyst, began to curette, went as far as he could, but as some of the material he extracted had the appearance of brain tissue, he discontinued. He took a specimen of the tissue to the laboratory and it was pronounced suspicious of brain substance. He thought the patient might develop meningitis, but did not. The wound kept on discharging, but there was nothing found except unorganized tissue and some saprophytic bacteria. Subsequently, under general anesthesia, he made an incision from the orbital ridge upward and backward and found the frontal bone very thin; upon breaking through, a mass was discovered which resembled an onion in that it was made up in layers. This mass rested on the upper orbital contents and extended almost to the lesser wing of the sphenoid; the petrous portion of the temporal bone was exposed. The frontal lobe was compressed upwards. The mass was pear-shaped. There was an edematous right and left disc with a right proptthalmos, but no diplopia. Vision was 20/30 in left eye, and 20/30 in the right. As the wound kept on discharging he injected Beck's paste and subsequently had to go after the paste with a second operation, as it caused much swelling and edema. He curetted again and obtained nothing of the mass. Patient now has a small sinus tract running toward the median line, and if one uses a large sized probe, he can produce hemorrhage, owing to the granulation tissue present. The patient never had any diplopia. The dura was exposed. The roof of the orbit was gone and this space had no connection with the frontal sinus, because at the first operation he exposed the frontal sinus, and found no connection whatsoever (several X-ray plates were shown). At the same time, he curetted and removed as much of the ethmoidal and sphenoidal processes as possible with a clean sweep and drained through the nose.

He did not know the nature of the tissue removed, though it was submitted to many pathologists. If any member could suggest a method of treatment for this sinus without opening it up again

or could suggest the nature of this mass, he would be greatly obliged.

CHOKED DISC: DECOMPRESSION OPERATION WITH TAPPING OF THE VENTRICLE.

Dr. Suker showed a little girl who first came under his observation a little over a year ago. Her vision at that time was 20/30 with a low degree of hypermetropia, not more than 1 D. She complained of persistent headache, with vacillating diplopia due to paresis of right external rectus which would come on for a day or two and then disappear. Knowing from the history that her vision was 20/20 minus in O. D. and 20/30 in O. S. two years ago (Dr. Barr) after examining her carefully he found she had a bilateral choked disc of about 3 m. m. swelling. He had her under observation for about three months before it was decided to operate as the vision began to decrease and the disc became more choked. Both neurological and gynecological examinations were negative. With the progression of the choked disc she had a decrease of vision in each eye, so that an operation became necessary. In conjunction with Dr. Kanavel, a decompression was performed on the right temporal area. As soon as the trocar entered the ventricle, clear spinal fluid escaped. Subsequent to the operation, patient had a complete hemiplegia of the spastic type which lasted for some time and then disappeared. The headache disappeared as soon as the patient came out from the anesthetic. Vision had improved somewhat. The field of vision was characteristic (exhibited fields). One set was taken a year ago and the other set was taken on the 13th of March of this year—a red and form field in the right eye, and a green and form field in the left. The A-ray plates showed a characteristic condition. As a result of decompression the patient had a cerebral hernia which is very soft and seems to fluctuate. As the brain tissue was so close to the skin Dr. Kanavel did not dare to tap or explore, particularly as the patient feels so well. One X-ray plate showed enlargement of the sella turcica. Patient was now free from pain; she had no headache, and it did not hurt her to move around or press upon the hernia. The only symptom she complained of was incessant headache and occasional paresis of the right external rectus, and on account of the involvement of the right external rectus, it was decided to make a decompression on the right side and tap the ventricles. Within three days the bilateral choked disc of about 5 m. m. completely disappeared. There is now a secondary atrophy, which is stationary.

Dr. Emory Hill asked whether the girl had polyuria, to which Dr. Suker replied no.

Dr. H. B. Young, Burlington, Iowa, stated that several years ago he exhibited a girl with the same general characteristics as those noted in the case presented by Dr. Suker, and a report of the autopsy he gave a little over a year ago. There was internal hydrocephalus, with so much pressure on the

internal table of the skull that the grooves for the different convolutions were 20 per cent. deeper than normal of the average skull. She recovered under tuberculin injections, remained well for four years, and developed so rapidly that she weighed 150 pounds when she was only fifteen years of age. She died suddenly at six o'clock one morning. The autopsy disclosed what he had just mentioned.

PAUL GUILFORD, Secretary.

FULTON COUNTY.

The sixty-eighth meeting of the Fulton County Medical Society was called to order at 2:30 p. m., in the auditorium of the Y. M. C. A. Building in Canton, by President Beatty. Minutes of the May meeting were read and approved.

Dr. Stoops presented Delegates' report of the state meeting which was accepted.

Necrologist Dr. Stoops reported the death of Dr. E. S. Parker, of Vermont.

On motion of Cluts and Ray the report was adopted and the president appointed Stoops, Cluts and Simmons to draft resolutions of respect. The secretary was instructed to incorporate a copy of the resolution in the minutes of this society and mail a copy to Dr. Parker's relatives.

The executive committee reported on the College of American Surgeons.

On motion of Dr. Cluts the report was accepted.

Dr. Oren moved that it is the sense of this society that the formation of the College of Surgeons under its present plans is un-American and should not be countenanced by the rank and file of physicians and surgeons.

After considerable discussion Dr. Oren withdrew his motion and the question was left with the executive committee.

Dr. Gillispie of Peoria presented his paper on "Chronic Urethral Infection and Complications."

After discussion the society gave a unanimous vote of thanks to Dr. Gillispie for his splendid paper.

Dr. Cluts presented a paper on "Catarrhal Enteritis."

On account of the lateness of the hour the balance of the program was held over to the next meeting.

Drs. Stoops, Cluts and Simmons presented the following resolution which was adopted:

It is with profound regret that we, the members of the Fulton County Medical Society, are called upon to note the death of our friend and co-worker, Dr. Edwin S. Parker of Vermont; therefore be it

Resolved, That we hereby publicly express our esteem of this excellent man and physician. We recognize that Dr. Parker was a physician of more than ordinary ability, that he was a faithful friend; a generous and upright man; an excellent citizen; a Christian gentleman, a devoted son to a most estimable mother, and the exponent of the highest in professional ethics; Be it further

Resolved, That we hereby convey to the relatives of Dr. Parker our deepest sorrow and sympathy in this their great affliction and that a copy of these reso-

lutions be sent to said relatives, published in the ILLINOIS MEDICAL JOURNAL and recorded in the minutes of this society.

P. H. Stoops,
A. C. Cluts,
J. C. Simmons.

Adjourned.

D. S. RAY, Secretary.

MACOUPIN COUNTY.

The Macoupin County Medical Society met in quarterly session at Carlinville and was called to order by Dr. J. S. Collins, of Carlinville. After reading and disposing of the minutes the new officers were formally installed: President, Dr. E. R. Motley, of Virden; vice-president, Dr. C. D. King, of Gillespie; secretary-treasurer, Dr. T. D. Doan, of Scottville.

At this meeting it was unanimously decided to publish a County Journal by the society. It was also decided to revise the constitution which has been in force for a long time. A splendid dinner was enjoyed at Hotel Baird. After dinner the report of our delegate, Dr. T. D. Doan, from the annual meeting of the State Medical Society was given.

Dr. F. S. O'Hara, of Springfield, was then introduced and gave a very interesting talk on "X-Ray Work." He took up the history of the mistakes and failures of past work in this line and explained some of the causes of the failures; one of the most common causes being inferior machines and lack of careful study by the operator. He exhibited some plates which were interesting and were in accordance with the statements made by the doctor. He does not think that radium has accomplished anything that the x-ray cannot do. He considers that the work can be better done by the x-ray because of the ease with which these machines may be obtained.

At the close of his talk he invited all present to come to visit his large x-ray laboratory in Springfield to which he has added some of the latest machines. His talk and exhibits were very interesting and instructive and were greatly appreciated by all of the doctors present.

Dr. G. E. Stericker, of Springfield, followed with a talk on "Differential Diagnosis of Gastric Disorders" which was of considerable interest to the members present.

Dr. Don. W. Deal, of Springfield, then gave a talk on "Peritonitis."

All those present took a decided interest in discussing the papers and decided that this was one of the most interesting meetings for a long time. A vote of thanks was extended to the three doctors for their able papers and talks.

The next meeting place to be Palmyra.

DR. T. D. DOAN, Secretary.

OGLE COUNTY.

The Ogle County Medical Society held its August meeting in the lecture room of the Polo Public Library. The meeting was called to order by the president, Dr. Stevens of Rochelle, and owing to the absence of the secretary, President Stevens appointed Dr. L. A. Beard of Polo as secretary pro tem.

Dr. C. A. E. LeSage, Dixon, read a very practical and interesting paper on "Recent Development in Tonsillar Work."

The frequency of many of the infectious diseases arising from disease in the tonsils and the necessity for the total extirpation of the glands was discussed by Drs. Clark and Karcher of Freeport, Murphy of Dixon and Beard of Polo.

Dr. H. M. Stowe of Chicago then talked on the general topic of "Obstetrics."

He stated that the attending obstetrician should consider four points in his work, the life of the mother, the future health of the mother, the life of the child, and the future health of the child. He argued against trying to hasten labor and counselled allowing nature to take its course and the use of forceps only as a last resort. He discountenanced the use of chloroform, nitrous oxide and scopolamin, "a drug used by Dr. Freiburg and also recently by McClure's Magazine" as being dangerous to both mother and child, but especially to the child. Where an anesthetic is necessary, he advocated ether. He also recommended active work on the part of the mother in preparation for labor, saying it is the lazy and idle woman that suffers most and presents the most difficult problems for the attending obstetrician.

The paper was discussed at length by Drs. Murphy, Dixon, Karcher; Freeport; Allaben, Rockford, and Sheets, Oregon. Dr. Sheets reported a case in his practice in which a woman gave birth to a monstrosity on July 10 and in which he was assisted by Drs. Beveridge of Oregon and Murphy of Dixon. A complete description of the case, size of the monster, which weighed 13 pounds, and the difficulties of extraction were thoroughly explained by the attending obstetricians. The subject of monsters was then more fully discussed by Professor Stowe.

On motion the old officers were declared re-elected. A unanimous vote of thanks was tendered Drs. Stowe and LeSage for their interesting and helpful papers.

After a motion to hold the next meeting in Forrester the society adjourned.

SHELBY COUNTY.

The Shelby County Medical Society met July 23rd in session extraordinary at Lithia Springs Chautauqua, where "Physicians' and Public Health Day" was fittingly observed.

We were especially honored by the presence of the president of the Illinois State Medical Society, Dr. A. L. Brittin of Athens, Ill., Dr. F. J. Eberspacher of Pana, Ill., Dr. and Mrs. Albert T. Summers of

Mattoon, Ill., and Dr. Frank T. Lutz of St. Louis, Mo., all of whom with members of our county society helped to make this meeting a grand success.

Owing to a "blow out" en route, Dr. Summers was unable to open the program at eleven A. M. as planned, so the secretary kindly consented to "sub" with a few remarks from a lecture on "Camp Sanitation" recently given at the Chautauqua. He spoke of prophylaxis as the watchman of camp life and told the audience to prevent the fly and mosquito rather than allow them to exist. Sanitary triumphs of Panama were reviewed and a few special "brass tacks" given to Osteopaths and Christian Scientists relative to Panama sanitation.

This was followed by remarks on "Prevention of Disease" by Dr. Eddy of Shelbyville and Dr. Hoffman of Effingham, who held to the theme until the dinner bell changed the program. In the afternoon the following program was given:

"Sanitary and Moral Prophylaxis," Dr. Albert T. Summers, Mattoon.

"Tuberculosis of Childhood," Dr. F. J. Eberspacher, Pana.

Monologue, "A Neighborly Visit," Mrs. Albert Summers, Pana.

"The Cancer Problem," Dr. F. J. Lutz, St. Louis, Mo.

President Brittin's remarks on organization were well received. In his speech to the laity, quacks and quackery were ably exposed and the true ethical physician exalted.

Dr. Summers' paper was full of interest to all. He showed the needless sacrifice of human life daily from preventable diseases and made a plea for more efficient sanitation.

Dr. Eberspacher presented his paper very ably, giving his personal observations of all phases of tuberculosis in the clinic at Vienna, Austria, last year.

"The Cancer Problem," by Dr. F. J. Lutz of St. Louis deserves special mention, as he exploded "Dr. Cancer Quack" with his sure cures, etc., and warned the laity about its choice of a physician, as Dr. Brittin had also done. Both stated in substance that affability and a loquacious brand of pseudo scientific "gab" on the part of the physician was not the criterion by which the true learned physician should be known. He is known by his professional relations within his own locality, his attendance at medical societies and in general his activities and associations with true ethical physicians at home.

The monologue by Mrs. Summers was greatly enjoyed by everyone present.

About five P. M. all adjourned to "Quercus Alba," the summer residence of the secretary, where a reception was tendered the visitors and their ladies by Dr. and Mrs. Auld. About fifty physicians were present and, as one physician put it, "the very air was medicinal."

Dr. Henry C. Heuck of Sigel was elected to membership at a business session held afterwards. There

being no further business all adjourned, declaring they would be delighted to come to Lithia again and observe "Physicians' and Public Health Day."

F. P. AULD, Secretary, Shelbyville.

Personals

Dr. A. C. Ragsdale has removed from Creal Springs to Carbondale and will limit his practice to diseases of the eye, ear, nose and throat.

Dr. Otto L. Schmidt has been elected commodore of the Northwestern Yachting Association and of the Inland Lakes Yachting Association.

Dr. John P. Sprague has been appointed professor of physical education and hygiene at Grinnell College, Grinnell, Iowa.

Dr. James W. Jobling, formerly pathologist of the Michael Reese Hospital, has been appointed professor of pathology in the Vanderbilt University, Nashville, Tenn.

Dr. James W. Gillespie, for fourteen years coroner of Hamilton county, has resigned and Dr. John J. Gee has been elected his successor.

News Notes

—The *Madison County Doctor* for July and August proves that a medical society can hold successful meetings even in hot weather when so many others have too little "pep" to undertake a meeting.

—After twelve hours deliberation, a jury at Duquoin, August 1, found Jesse Joplin guilty of the murder of Dr. D. Winton Dunn, former mayor of Duquoin, and fixed his penalty at life imprisonment.

—Sixty cottages will be under roof before winter at the new State Epileptic Colony at Dixon. Twenty will be erected to the south, twenty to the north, ten to the east and ten to the west of the administration building.

—The *News-Letter* of Englewood Branch for August contains a review of the Branch's very successful year and an appeal for volunteers for the coming season's programs. An excellent feature of the latter is the "reply blank" to be filled out by the members who offer to prepare papers at the date of their choice.

—The Illinois Board of Administration has decided to open a farm cottage annex to the Kankakee State Hospital on the site of the new Alton State Hospital. Three farm houses on this property are available, which will accommodate about one hundred patients who have almost recovered their mental poise.

—Dr. W. O. Nance, who recently returned from a European trip, was appointed chairman of a Chicago Council committee to locate Chicagoans detained in Europe but found the expense of sending cablegrams was so great that the funds available were soon exhausted. Mayor Harrison thereupon undertook to forward inquiries through the department of state.

—The State Board of Health field inspectors are to begin a tour of inspection of railroad depots. They will consider especially sanitation of toilet-rooms, water supply, cleanliness of waiting-rooms, cuspidors, sanitary conditions of restaurant kitchens and eating-places, ventilation and disposal of waste, and conditions of the stock-loading pens in the vicinity.

—The new building of the dispensary of the Evanston Tuberculosis Institute at the corner of University place and Maple avenue has been completed and the institution is in active operation. The hours for receiving patients are from 2 to 3 p. m., Mondays and Thursdays. The dispensary is under the medical supervision of Drs. William A. Phillips and William G. Alexander. It is expected that the general dispensary of the building will soon be ready to receive patients.

—The *Bulletins* of the Montgomery County Medical Society for July and August are at hand and present their usual attractive appearance. The article on Principles of Medical Ethics is concluded in the last number. The July 21 meeting of the society was held on a beautiful lawn in Harvel, where Dr. W. H. Mercer gave an address on his European experiences. The announcement of a fried chicken dinner and picnic for the August meeting doubtless drew a record attendance.

—At a "Chicken Fry" given by its president, Dr. W. S. Jones of Redmon, the Edgar County Medical Society planned a big day for some time in October. Several eminent speakers from a distance will be selected to aid in the afternoon program. At night will occur a special musical

program and banquet for members and families. The president appointed a special executive and program committee, consisting of Dr. E. O. Laughlin, Dr. Z. T. Baum and Dr. B. G. R. Williams, chairman.

—The first building of the new Cook County hospital was opened August 15 without ceremony. The building at present in use is the administration hall, which will accommodate 656 patients. The entire eighth floor of the building is arranged for surgical work. There are nine operation rooms, including two amphitheaters. The silent-call signal system has been installed throughout the institution. The old hospital buildings are now to be wrecked to make room for the new structures which will cost, when completed, \$16,000,000.

—Many physicians from Chicago and other cities of this state were interned in Europe during the mobilization of troops, but the different governments seem disposed to facilitate their home coming. Nearly every steamer brings its quota of hard-luck stories. Dr. H. H. Schumann, a Chicago dentist, is said to have been arrested as a spy in France on account of a scientific manuscript he carried. One can readily imagine that a picture of streptococci might be taken for a war map by a suspicious officer. A French physician recognized the terms in the paper and caused his release.

—Several physicians in southern Illinois and Indiana are launching a new medical journal, *The Wabash Valley Practitioner*. The vicinity is rich and covered by strong medical organizations. The sheet will be strictly independent, though it has the endorsement of the best men in that region. The executive staff will consist of an editor, Dr. E. G. C. Williams, the secretary of the Vermilion County Medical Society and editor of its bulletin, and a publisher, Dr. B. G. R. Williams, who is ex-president and present chairman of the executive committee of the Edgar County Medical Society. Original papers, news and other matter of local interest will be included.

Marriages

PAUL HENRY ANTHONY, M. D., Morris, Ill., to Miss Mary Wendolyn Fitzgerald of Chicago, at Chicago, June 30.

EDWARD KENT ARMSTRONG, M. D., Chicago, to Miss Caroline Holmes Focer of Cape May, N. J., August 10.

THOMAS IRVING STINES, M. D., to Miss Laura Lee, both of East St. Louis, Ill., July 28.

Deaths

WEBSTER M. DYAS, M. D. Rush Medical College, 1896; died at his home in Arlington Heights, Ill., July 2, aged 52.

ALFRED ROYCE BRUNDAGE, M. D. Albany (N. Y.) Medical College, 1890; died at his home in Chicago, July 20, aged 54.

GILLUM TAYLOR RAGAN, M. D. University of Georgetown, Washington, D. C., 1866; died at his home in Neoga, Ill., July 9.

WILLIAM WILFORD MCMURDO, M. D. Washington University, St. Louis, 1905; died at his home in Marissa, Ill., August 6, aged 35.

SOLOMON L. REEFY, M. D. Eclectic Medical Institute, Cincinnati, 1870; died at his home in Edinburg, Ill., August 2, from paralysis, aged 75.

CARL G. LINDEBLAD, M. D. Rush Medical College, 1908; formerly of La Grange, Ill.; died in his apartments in Albuquerque, N. Mex., July 30, aged 33.

LEE OSBORNE SCOTT, M. D. Rush Medical College, 1905; a member of the Illinois State Medical Society; died at his home in Rockford, Ill., June 26, aged 36.

WILLIAM HENRY ELDRÉD, M. D. Rush Medical College, Chicago, 1882; Hahnemann Medical College, Chicago, 1883; died at his home in Chicago, August 12, aged 56.

ALBERT RODERICK WARREN, M. D. Eclectic Medical Institute, Cincinnati, 1882; mayor of Pekin, Ill., in 1887; a veteran of the Civil War; died at his home in Pekin, August 5, aged 74.

MILAN THERON WARD, M. D. Albany, N. Y., Medical College, 1894; a Fellow of the American Medical Association; died at his home in Toulon, Ill., after practicing medicine there about 20 years, July 7, aged 55.

HAGOP H. THOUMAIAN, M. D. Northwestern University Medical School, Chicago, 1896; of St. Anne, Ill.; a Fellow of the American Medical Association; died in the Presbyterian Hospital, Chicago, July 18, aged 47.

EDWIN S. PARKER, M. D. Northwestern University Medical School, 1885; a Fellow of the American Medical Association; died at his home in Vermont, Ill., recently, from cerebral hemorrhage, aged 55.

HENRY T. MCKEE, M. D. Missouri Medical College, St. Louis, 1884; of Sparta, Ill.; aged 56; a Fellow of the American Medical Association; died in a hospital in St. Louis, June 3, after an operation for mastoid abscess.

HENRY PARKHURST GREELEY, M. D. Chicago College of Medicine and Surgery, 1913; of Lee, Ill.; was instantly killed in a collision between the automobile in which he was riding and a railroad train near Shabbona, Ill., July 5.

LEMUEL CONANT GROSVENOR, M. D. Homeopathic Hospital College, Cleveland, 1864; for thirty-seven years a practitioner of Chicago, and for seven years a resident of Taunton, Mass.; died at his home in the latter place, July 17, aged 82.

CHARLES SEGERLUND, M. D. Bennett Medical College, Chicago, 1897; a Fellow of the American Medical Association; secretary of the Caledonia (Ill.) Mutual Telephone Company; was instantly killed by a train near Caledonia, July 24, aged 47.

HENRY KNOX STRATFORD, M. D. Eclectic Medical College of Pennsylvania, Philadelphia, 1865; Bennett Medical College, Chicago, 1888; surgeon at Camp Douglas during the Civil War; died at the home of his daughter in Austin, Chicago, July 28, aged 92.

WILLIAM EDWARD HOWARD, M. D. St. Louis College of Physicians and Surgeons, 1890; Bellevue Hospital Medical College, 1898; of Ohio, Ill.; a Fellow of the American Medical Association; was instantly killed by the overturning of his automobile, May 20, aged 49.

DAVID PHILIP MILLER, M. D. Keokuk, Iowa Medical College, 1895; of Chicago; a Fellow of the American Medical Association; formerly professor of physiology in Illinois Medical College; died in the Henrotin Hospital, Chicago, July 22, after a surgical operation, aged 41.

WILLIAM H. WILLIS, M. D. Missouri Medical College, St. Louis, 1881; a Fellow of the American Medical Association; a member of the staff of the Proctor Hospital, Peoria, Ill.; died

suddenly at the base-ball park in that city, July 4, from angina pectoris, aged 54.

GEORGE HARVEY LEE, M. D. Bennett Medical College, Chicago, 1883; of Kankakee, Ill.; a member of the Illinois State Medical Society; president of the Kankakee County Medical Society; died in the Emergency Hospital in Kankakee, July 8, from septicemia, due to a splinter wound of the finger, aged 54.

NEW AND NONOFFICIAL REMEDIES.

Since publication of "New and Nonofficial Remedies, 1914," the following articles not previously described have been accepted for inclusion with "N. N. R.":

Antiseptic Supply Co.: Stypstick Applicators, alum 75 per cent.

Comar & Cie.: Electrargol for injection, 10 c. c. ampoules.

Hykson, Westcott & Co.: Urease-Dunning.

Electrargol.—Electrargol is a colloidal solution of silver, containing silver, equivalent to 0.25 per cent metallic silver. It is said to be useful in febrile diseases, even in those which are not of a septic character. It is also used externally in inflammatory conditions. For subcutaneous, intramuscular or intravenous injections electrargol is supplied as electrargol for injection in ampoules containing 5 c. c. For external use electrargol is supplied as electrargol for surgical use in bottles containing 50 c. c. (Jour. A. M. A., June 6, 1914, p. 1808.)

Culture of Bulgarian Bacillus, Mulford.—A pure culture in tubes of the *Bacillus bulgaricus*. It is designed for internal administration for the purpose of establishing lactic acid-producing bacilli in the intestines and for external use. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., June 13, 1914, p. 1890.)

Lactobacilline Tablets.—A pure culture of the *Bacillus bulgaricus*. These tablets give rise to the production of considerable quantities of lactic acid, which tends to restrain the growth of putrefactive organisms in the intestines. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1890.)

Lactobacilline Liquide, Culture A.—A pure culture in tubes of the *Bacillus bulgaricus* grown in a neutralized sugar bouillon, each tube containing from 5 to 6 c. c. Its actions and uses are the same as those of Lactobacilline tablets. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

Lactobacilline Liquide, Culture D.—A pure culture in tubes of the *Bacillus bulgaricus* grown in a neutralized bouillon. Its action and uses are the same as those of Lactobacilline tablets. Marketed as Lactobacilline Liquide, Culture D, small containing 5 c. c. and Lactobacilline Liquide, Culture D, large containing 16 c. c. in each tube. Franco-American Ferment

Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

Lactobacilline Liquide, Infant's Culture.—A pure culture in tubes of the *Bacillus bulgaricus* in a whey medium. It is employed in the treatment of diarrhea or dysentery in nursing infants or young children. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

Lactobacilline Glycogene Tablets.—Tablets containing pure cultures of the *Bacillus bulgaricus* and the *Glycobacter peptolyticus*. The *Glycobacter peptolyticus* transforms into sugar the amylaceous substances in the diet, thereby furnishing a pabulum for the *B. bulgaricus*, which, in turn, transforms the sugar into lactic acid. These tablets are designed for the prevention and treatment of intestinal diseases. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

Lactobacilline Glycogene Liquide.—A pure culture in tubes of the *Bacillus bulgaricus* and the *Glycobacter peptolyticus*. Its action and uses are the same as those for Lactobacilline Glycogene tablets. Marketed as Lactobacilline Glycogene Liquide, small, containing 5 c. c. and Lactobacilline Glycogene Liquide, large, containing 16 c. c. in each tube. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

Lactobacilline Milk Tablets.—Tablets containing pure cultures of the *Bacillus bulgaricus* and *Bacillus paralacticus*. These tablets are used in the preparation of scientifically soured milk. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

Lactobacilline Suspension.—A pure culture in tubes of the *Bacillus bulgaricus* grown in a neutralized bouillon medium. This culture tends to inhibit the growth of deodorant, putrefactive and pathogenic organisms and is used externally in various suppurative conditions. Marketed as Lactobacilline Suspension, containing 5 c. c. and Lactobacilline Suspension, surgical, containing 20 c. c. in each tube. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

Lactobacilline Milk Ferment.—A pure culture in tubes of the *Bacillus bulgaricus* and *Bacillus paralacticus*. Its actions and uses are the same as those of Lactobacilline milk tablets. Franco-American Ferment Co., New York. (Jour. A. M. A., June 13, 1914, p. 1891.)

OMITTED FROM N. R. R.

Wm. R. Hubbert.: Diphtheric Antitoxin, Hubbert. —Having been advised that Diphtheric Antitoxin, Hubbert, was no longer on the market, the council directed that it be omitted from future editions of new and non-official remedies.

CHANGE OF NAME.

Riedel & Co.: Hexalet.—At the request of the manufacturer the name Hexal in new and non-official remedies has been changed to hexalet.

Public Health

Inasmuch as it is compulsory that children between the ages of 6 and 14 years attend school, it devolves on a community through its constituted authorities, to see that its children are not forced into surroundings which endanger their well being—physically, mentally or morally.

Children are compelled to attend school during that period of life when peculiarly susceptible to certain contagious and infectious diseases. The average individual spends more days on the sick bed while of school age than at any other period of life, and by far the greater part of the illness of that age is of the preventable kind. The school child undoubtedly contracts many of its infections in the schoolroom.

It, therefore, is a matter of tremendous importance that safeguards—extraordinary safeguards—be thrown around the child while it is a compelled attendant at a community institution, such as a school.

In school hygiene there is nothing of more far-reaching importance than *proper* ventilation of the school building. Pure air will do more to eliminate the danger of infection in the schoolroom than any other one thing. It tends to keep up the pupil's physical tone, which means resistance to disease and, besides, it is one of Nature's most effective bactericides. An unventilated, overheated schoolroom is an incubator for disease germs and a destroyer of physical and mental efficiency.

Some of our schools have inefficient system of ventilation—but none are without the means of securing an adequate supply of pure air. When the ventilation system is inefficient, resort to the open window can be had.

The quality of a school's air rests, therefore, with the school principal, his staff of teachers and the caretakers.

A principal or teacher indifferent to air conditions in his school is indifferent to the health and well-being of his charges, a menace to child and community welfare. A consideration in measuring a principal's or a teacher's efficiency should be his or her attention to the question of school air.

The schoolroom should be the safest place a child may go. To make it so we must have:

1. Perfect ventilation.
2. Proper heating and humidifying of air when necessary.
3. Cleanliness of quarters and occupants.
4. Exclusion of infection bearers.

Most of our human worries are simply excess baggage that we do not need to take along and which to carry costs us in bodily wear and tear ten times its value. It is a good plan to travel light and take things as easy as possible. Not that we should shirk either our work or our responsibilities, but we need not carry excess baggage.

Spasmodic cleanliness is better than no cleanliness at all. But it is being clean all the time that makes most for health, happiness and freedom from disease.—*From Bulletin Chicago Department of Health.*

Book Notices

ANOCI-ASSOCIATION. By George W. Crile, M. D., Professor of Surgery, School of Medicine, Western Reserve University, Cleveland; and William E. Lower, M. D., Associate Professor of Genito-Urinary Surgery, School of Medicine, Western Reserve University, Cleveland. Octavo of 259 pages, with original illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$3.00 net.

This is one of the most interesting books we have read. A small part of the book has appeared previously in monographs by Dr. Crile.

The subjects treated are scientific and comparatively new, yet are written up in a remarkably clear, readable style, and any physician seeing the work, will want to read it thoroughly. While it is scientific in the main, the book contains much that is of immense practical value in the everyday routine work. No physician who is doing any surgery, particularly emergency surgery, should fail to read this book.

A TREATISE ON CLINICAL MEDICINE. By William Hanna Thomson, M. D., LL.D., formerly Professor of Practice of Medicine and of Diseases of the Nervous System in the New York University Medical College; Ex-President of the New York Academy of Medicine, etc. Octavo volume of 667 pages. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$5.00. Half morocco, \$6.50.

This book is rather out of the ordinary and, as its name implies, is a work on *clinical* medicine. Perhaps since the days of the microscope we rely too much upon its use; at least, if a diagnosis may be made from purely clinical findings, the patient may be relieved just so much sooner, and that is always a prime object.

The book will be found useful for those practitioners who must do without the microscope in much of their work. It is especially serviceable in diagnosing conditions which the microscope fails to reveal. One of the principal features of the book is the attention it bestows on therapeutics. We recommend it especially to the general practitioner.

BLOOD PRESSURE: ITS CLINICAL APPLICATIONS. By George W. Norris, A. B., M. D., Assistant Professor of Medicine in the University of Pennsylvania; Visiting Physician to the Pennsylvania Hospital; Assistant Visiting Physician to the University Hospital; Fellow of the College of Physicians of Philadelphia. Octavo, 372 pages, with 98 engravings and 1 colored plate. Cloth, \$3.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

This new work on blood-pressure and its clinical applications well deserves careful study. It is one of the best works on the study of blood-pressure and its relations to health and disease. The chapters on blood-pressure in disease are especially good, likewise the chapters on the effect of drugs and glandular extracts. The work is well illustrated, and the illustrations aid greatly to a perfect understanding of this subject. This book is

recommended for those who wish an excellent work on blood-pressure.

A TREATISE ON DISEASES OF THE NOSE, THROAT AND EAR. By William Lincoln Ballenger, M. D., Professor of Laryngology, Rhinology and Otology in the College of Physicians and Surgeons, Chicago. New (4th) edition, thoroughly revised. Octavo, 1080 pages, with 536 engravings, mostly original, and 33 plates. Cloth, \$5.50 net. Lea & Febiger, Philadelphia and New York, 1914.

Those who have read any of the previous editions of Ballenger need no recommendation to this new fourth edition. A fourth edition coming within six years demonstrates how the profession receives this book.

It is primarily a text-book for the student, teaching Rhinology, Laryngology, and Otology as few men know how to teach it, and this is one of the reasons for the popularity of the work.

Dr. Ballenger has done an enormous amount of work on this text, and has revised all that is in it down to date, adding to the earlier editions all that is new and best on these subjects.

In this new edition the Labyrinth has claimed most attention, there being over one hundred pages added on this topic.

The illustrations alone from a large part of the book, and their value cannot be calculated. Several new operations are described and illustrated. No medical student can afford to be without this book, and every physician should possess a copy.

A MANUAL OF DISEASES OF THE NOSE AND THROAT. By Cornelius G. Coakley, M. D., Clinical Professor of Laryngology in the College of Physicians and Surgeons, Columbia University, New York. New (5th) edition, 12mo, 615 pages, with 139 engravings and 7 colored plates. Cloth, \$2.75 net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

A new edition of this well-known manual on Laryngology will be gladly received by those who have used it in the past. The work is one of the most practical manuals of which we know. It is brief, clear, and still covers the subject in a wonderfully practical manner. The illustrations are good.

One must remark on the attention given to medical treatment. The book is especially adapted to the use of the student who cannot give the time to a subject as is required by the more ponderous volumes. The general practitioner will find it quite useful in the everyday routine of general practice.

SEROLOGY OF NERVOUS AND MENTAL DISEASES. By D. M. Kaplan, M. D., Director of Clinical and Research Laboratories of the Neurological Institute, New York City. Octavo of 346 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$3.50 net.

This is the first American book covering the subject of Serology in nervous and mental diseases.

Coming as it does at a time when so much thought and study are being given to that class of diseases, and at a time when so much research work is being done in Serology, makes us predict for it a wide sale.

The general practitioner will be interested in the book, and be surprised at the enormous amount of work already accomplished. The book will be of most value to the laboratory worker in his everyday routine work, and to the research worker in the many perplexing questions coming before him. We recommend it to the profession.

THE CLINICS OF JOHN B. MURPHY, M. D., at Mercury Hospital, Chicago. Volume III. Number III. Octavo of 215 pages, 54 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Published Bi-Monthly. Price per year: Paper, \$8.00. Cloth, \$12.00.

The present volume of clinics keeps up well the pace set by previous volumes. Especially good are the chapters on surgical and general diagnosis, tenoplasty, neuroplasty, and arthroplasty. The presentation of the cases with diagnosis before operation, at operation, and final result is ideal. One cannot commend these clinics too highly.

DIETETICS: OR FOOD IN HEALTH AND DISEASE. By William Tibbles, LL.D., M. D., L. R. C. P., M. R. C. S., L. S. A. Medical Officer of Health, Fellow of the Royal Institute of Public Health, etc. Octavo, 627 pages. Cloth, \$4.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

The marked advance in the last few years in the study of dietetics has resulted in this new work on dietetics, or food in health and disease, by Dr. William Tibbles, of England. It is a fairly large work and covers the subject matter in two parts. The first part gives an exposition of food values, digestion, absorption, heat value, metabolism, etc.—the second part on the use of foods in the numerous diseases in which attention to food is important. The ground is well covered, and is one on which physicians in general are somewhat weak. The reading matter is exceedingly clear and easily grasped. It is a book that should be in every physician's library, and one that will be frequently referred to with profit to both physician and patient.

COLLECTED PAPERS FROM THE RESEARCH LABORATORY of Parke, Davis & Co., Detroit, Mich. Volume II, 1914.

This volume contains the collected papers of the research laboratory of Parke, Davis & Co., as they have appeared from time to time in the various scientific publications. For those interested in medical research work, this volume of papers should be extremely interesting and make profitable reading.

GUIDING PRINCIPLES IN SURGICAL PRACTICE. By Frederick-Emil Neef, B. S., M. L., M. D. Adjunct Prof of Gynecology, Fordham University School of Medicine, New York City. Sextodecimo; 180 pages. Surgery Publishing Co., New York. Price, cloth, \$1.50.

This work by Dr. Neef covers in a volume of 180

pages that portion of surgery which experienced surgeons do as a natural thing to obtain successful results. It is a work principally for the general practitioner and the beginner in surgery. The book covers the principal points in the preparation of the patient, the operating room, and the surgeon. The relationship between the anaesthetist, the assistant, and the family physician are not neglected. The mechanical features of the book are excellent. Marginal headlines in red ink facilitate ready reference.

DISEASES OF BONES AND JOINTS. By Leonard W. Ely, M. D., Associate Professor of Surgery, Leland Stanford Junior University, San Francisco, Cal. Sextodecimo: 220 pages, 94 illustrations. Surgery Publishing Company, New York. Price, cloth, \$2.00.

Professor Ely has written this book at a most opportune time, as an unusual interest has manifested itself at present by the profession in acute and chronic arthritis, and other types of bone and joint diseases. As with the volume of Dr. Neef, this one is intended primarily for the general practitioner, without going into a mass of details. It is concise, clear, lays down broad general principles, and shows how they may be applied. It is well illustrated, which aids greatly in presenting this subject. As a clear, concise, short and readable book it can be recommended.

A TEXT-BOOK OF MEDICAL DIAGNOSIS. By James M. Anders, M. D., Professor of the Theory and Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College of Philadelphia and L. Napoleon Boston, M. D., Professor of Physical Diagnosis, Medico-Chirurgical College, Philadelphia. Second edition thoroughly revised. Octavo of 1248 pages, 500 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$6.00 net; Half morocco, \$7.50 net.

The second edition of this excellent book on medical diagnosis is before us for review. One can scarcely imagine the amount of new material added since the first edition.

The entire work has been almost completely rewritten and all practical advances in diagnosis given consideration. Important new matter added are movements of the two halves of the chest; electrocardiograms; extrasystole; auricular fibrillation; semi-irregularity; albuminous sputum; cobra-venom reaction in syphilis; tick of relapsing fever; Rumpell-Leed phenomena in scarlet fever; inclusion bodies of Döhle in scarlatina; sweating and its significance; trichinella spiralis in the blood; MacEwen's sign and Brudzinski's sign of epidemic meningitis; Prendergast's typhoid reaction; fatty emboli; and numerous others, in fact, enough new matter to make a distinct and separate volume. Its 1200 odd pages are well printed, readable and clear, the style is easy, and the numerous illustrations, mostly original, greatly facilitate easy grasping of the text. One can no more than emphasize the review on the first edition, that it is without doubt, one of the two or three leading works on medical diagnosis in the English language, and as such it is commended to student, general practitioner and specialist.

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Original Articles

MEETING OF ALIENISTS AND NEUROLOGISTS FOR THE DISCUSSION OF MENTAL DISEASES IN THEIR VARIOUS PHASES.

HELD AT HOTEL LA SALLE, CHICAGO, ILL., JULY 13, 14, 15, 16 and 17, 1914.

July 13th.

ADDRESS BY THE CHAIRMAN,

L. HARRISON METTLER, M. D.

CHICAGO.

Members of the meeting: This is the third annual meeting and those who attended the other two know how successful they were. We have a very elaborate program this time, out of which, I am sure, we shall get a very great deal of benefit and possibly set some of our lay friends to thinking upon the matters which we are so interested in; and at this point I cannot help but pay a compliment to our friend, Dr. Mefford, for getting up this program for us. We have a large number of speakers this morning and our program is so long that I am going to refrain from wearying you with an address from the chair. I do want to say, however, that I feel unusually honored to be invited to serve you as Chairman of the meeting at this time. I feel that the subjects we are going to discuss are among the most important that not only man is interested in, but above all, civilized man and man living in communities.

John Fiske at one time said that psychology is the science of sciences, because upon the knowledge of the working of mental phenomena depends the validity and reliance of the doctrines in all the other sciences. Herbert Spencer and Kant, and nearly all the philosophers, have identified civilization with mentalization. Without mentalization or the working of the mind, there

is no such thing as civilization. Therefore, when you stop to consider that the subjects which we are going to discuss (and put upon record, too, for we shall publish them in book form, open to subscription), are not subjects that we as doctors are alone interested in in the sick room, in the sanitarium or in the asylum, but are subjects that involve our whole community life.

If history tells us anything, history says and shows distinctly that with the change of the mentalization of certain communities those communities either rise or fall. It is not dependent upon industrialism, commercialism, financialism or any of the great agencies whereby civilization is kept going, but this civilization, its rise or its fall, is directly dependent upon the great universal mind among the people. What we are going to discuss, and many of its side issues and details will be brought out, is an immense subject; a subject that is fascinating; and we have on our program those who, in this country, are most capable of handling it. We are going to have a large amount of discussion upon what are called "Borderland" states of mentalization and there we meet with difficulty. We are going to discuss the old problem of "what is a normal mind." It has been said, much of the corruption, much of the crime, much of the wrong-doing that we find in our community is the result of our democracy, in the broad sense of the word, of course. In reaching down and bringing up the people we are going to bring up the inefficient, defective, untrained, undisciplined. The legislator, the statesman, the scientist and people of all the walks of life are looking to us to say—is this man a normal man, or, is this man an abnormal man? There is a danger in some of the subjects we are going to discuss of calling pathological certain states of mental activity which are not pathological, but are simply undeveloped, biologically inferior.

I congratulate the Chicago Medical Society; I congratulate the Committees; I congratulate you and myself in having the opportunity to attend these meetings, which will undoubtedly go on improving from year to year, until the laity and the leaders of thought in our community will see that we can define for them what represents a normal, safe citizen, in our present complicated form of civilization. I feel honored in serving you as Chairman.

I want to state that I shall call upon different members to serve as chairmen and in regard to the papers and discussion, I know there will be no hard feeling if I try to save the time by limiting the papers to 15 or 20 minutes and remind the speakers the discussions will have to be closed in five minutes, unless there is a special request otherwise.

Upon opening the meeting, it gives me great pleasure to introduce to you the first speaker on the program, Dr. James A. Clark, president of the Chicago Medical Society, who is known to most of you and who will deliver the welcoming address.

ADDRESS

JAMES A. CLARK, M. D.

Members of the Congress of Alienists and Neurologists: It is indeed a very great pleasure as a representative of the Chicago Medical Society to welcome you to our city and to welcome this very distinguished body of scientists and humanitarians.

In accepting the invitation of the committee in charge of these meetings we feel that you have honored us very much more than we can in any way repay you, but such as we have in the city, is yours to enjoy. We ask you to make the office of the secretary of the society, at 31 West Lake street, your office.

Our post graduate schools and hospitals invite you to attend, as much as your time and inclination permit. Some of our resorts have issued tickets of admission for you, where you can be entertained with music and froth, the third body of the trinity being out of town this week.

It is but fair to state that the great success of these meetings is due, not so much to our large medical society as a whole, as it is to the tireless, persistent, unselfish labors of the secretary of the

committee, who illustrates by his works the truth of the saying: "What a catapult is an earnest man. What can resist him?"

An aphorism by Mundt says that "Men think very little and very seldom," and I think you will agree with him that the aphorism is true for the great mass of humanity.

The great benefit of these series of meetings is that they are making many men think a great deal and think often. You are working out problems of great economic value.

I take it that there are three questions of paramount prominence for the world to settle and answer correctly:

1. Moral degeneracy.
2. Mental deficiency.
3. Physical decline.

Will our eugenic friends be able to reach their pinnacle of perfection and establish a utopia where all shall be of physical perfection and ability, with corresponding intellectual excellence? Would not such a condition be like living always in the noon-day glare of a summer sunshine with no change to twilight and night?

The most evident fact in hereditary transmission is death, and the next is the tendency towards disease.

If their ideals are ever carried out—when disease is no more and degeneracy a thing of past ages, will there then be peace and happiness on earth?

Who will do the work of the world—the drudgery, without the commonplace, rather stupid, mediocre man?

How far shall we go in building barriers about permission for marriage, to the end of producing perfect children, and how much shall we sacrifice to the development of educated intelligence?

If every person in this country had a high school or college education, what would happen to all of us? Would our factories be full of workmen? Would our railroads be handling merchandise and passengers better than they do now? Would our streets and alleys and sewers be any cleaner than they are now? Would we be better housed and fed and tended than now? And would our jails and asylums have fewer occupants than now? When our country shall have reached its maximum of population and all the children of the country have been well

born and well educated and we have no more room for emigration, will we hold our supremacy?

Kaiser Wilhelm of Germany said that the beginning of the downfall of England was the passage of the Educational Bill in England. Be that as it may, the statement is not contradicted that in the last few generations the average height of the man of London has decreased six inches and his average weight decreased 50 lbs. Living upon the fruit of the tree of knowledge has always had the same effects, that is, upheaval of social systems and revolutions, more or less bloody. Through the advancement of hygiene, medicine and surgery, the average length of a man's life has been increased 20 years, but the commonplace man finds it increasingly harder after middle age, when experience and wisdom are at its best. The call is for young men.

If all the vicious be confined in prisons, and the deformed and defectives, mental and physical, be kept in hospitals and asylums; if pauperism be done away with by paternalism; if pain be driven from the world by this eugenic panacea, will not charity and pity die because none will need them, and we ourselves lose those attributes which we now are taught to believe are of divine descent?

I may ask which is the better for a nation to have, good physique, and ordinary brain development, or to have brilliant intellect and but indifferent physical body? The eugenists say we must have both. This we sometimes do find, but yet too seldom, nor do I believe that the world will reach this standard this side of the millennium. Time does not permit me to put an immense number of questions that could come under the heading of mental, moral and physical delinquency and how best to deal with them for the good of humanity.

This series of meetings, which started three years ago in the local west side branch, have already become national in their influence, and if the geometrical ratio is kept up, these meetings will be international and universal in their influence, and you will have caused very many men, both physicians and laity, to think often, very much and very hard, and whenever many men think earnestly, unselfishly and honestly, social upheavals and revolutions will better the race.

I take pleasure in turning over the conducting of these meetings to the most excellent chairman of these societies, Dr. Mettler.

ADDRESS JUDGE HARRY OLSON, CHICAGO.

THE MUNICIPAL COURT OF CHICAGO.

VISITING ALIENISTS, MEMBERS OF THE CHICAGO MEDICAL SOCIETY,

Ladies and Gentlemen:

No subject was assigned to me on this occasion and I assume that I have been placed on this program to extend to you the freedom of the town. Usually that courtesy is extended by the Chief of Police, but since private individuals have the right to bring people to the attention of the court without calling upon the police, the committee has taken the precaution to have the freedom of the town extended by one who has jurisdiction of the criminal calendars in courts of first instance. The freedom of the town, I assure you, will be granted. Chicago welcomes the distinguished physicians who will gather here.

The important subjects treated in your program and their relation to the practical questions of the day will go far to educate public sentiment on problems more important to us, as a people, if we but knew it, than the ordinary political questions that seem to absorb the public mind.

Insanity, feeble-mindedness and mental disease in general are on the increase in this country. Many factors contribute to this result, among which first come to mind: the speed of our civilization, inadequate immigration exclusion laws, disregard of the laws of eugenics, the relation of specific disease to heredity and mental health, to which must be added the conservation of the defective classes brought about by higher standards of civilization. Not long since I was in the Smithsonian Institute in Washington, D. C., when approximately 100 skulls were unpacked from a box shipped from Peru, where they were gathered from battle fields where they had lain from a time antedating the discovery of America by Columbus. Each of these pre-Columbian skulls had from two to three holes driven through it as the result of blows struck in warfare among the primitive people to which these skulls belong. Among such a people, war, poverty, and disease, did a thorough piece of work in removing the defective classes. The survival of the fittest left the field to the dominant.

While mental defects are on the increase, so also are the interest and activity of your profession in finding protective and preventive remedies. The immediate and pressing problem is the identification and care of those we already have, both for the protection of society and for the welfare of the afflicted, and after this has been solved the recurrence in large numbers of these defective stocks must be prevented, through a better understanding of the laws of mental health, a restriction of the defective immigration from older countries, segregation of defectives, especially women of child bearing age, popular education in the operation of the laws of eugenics, and the deleterious effects of venereal disease. The general public needs to be informed on these subjects. That this is so, becomes clear when we recall that Congress has spent months in debates concerning the literacy test for immigrants, while very little was being done to exclude the defective classes.

A negro from the cotton fields of Mississippi, with no schooling at all, passed the Binet-Simon test in our psychopathic laboratory in the Municipal Court as perfectly normal. Had he been an immigrant, subject to the literacy test, he would have been excluded from admission to the United States. If he had been a defective of the grade of moron, but was able to read, he would have been admitted into this country under a law requiring the literacy test as the test of admission. This illustrates the lack of appreciation on the part of some of our law-makers of the true situation. Not only legislators, but the electors themselves, sometimes become the victims of their inability to identify mental derangement. So unsophisticated are we that we sometimes elect to responsible public office a troublesome individual whose mischief-making propensity arises from defective mental trouble that most of you gentlemen would recognize because of his conduct in public affairs.

Even the average physician gives but little time to the consideration of the subject of insanity or feeble-mindedness. He leaves that field to the specialist. Until a few years ago very little instruction was imparted in the medical schools in these subjects. Unfortunately the medical men, outside of the alienist group, have been slow to appreciate the conditions they meet with in actual life. The average physician de-

votes himself to curing disease, and as there is no cure for feeble-mindedness, he is but little interested in the subject. Even the alienist has permitted the psychologist to excel him in the ability to measure human intelligence. Recently a test was made between ordinary doctors and the Binet-Simon test in the matter of detecting defective immigrants at Ellis Island. The ordinary doctors got ten per cent., while the Binet-Simon scale got ninety per cent.

We have been slow in the United States to appreciate the accuracy of the Binet-Simon scale in measuring the general level of intelligence. It has been proven that it is possible for one who knows how to apply the test correctly, and who is experienced in the interpretation of responses, to give a more enlightened estimate of a child's intelligence, after a half hour's examination, than it would be possible for the teacher or physician to give on the basis of many months of close observation. If the ordinary physician has lacked interest in the subject, what must be said of the lawyers and the judges? Unless a large fee was involved, which was seldom the case where the feeble-minded were concerned, the lawyer gave no attention to the subject. Our judges, as a rule, have little knowledge of psychology, sociology, anthropology or the significance of criminal statistics. To illustrate: Not long ago there arrived in Chicago a fugitive from Ohio, a twenty year old boy, who had committed a triple murder. He was given a neurological and psychological examination by a competent expert in Chicago, and found to have a basal age of eight years and a mental age of ten. He had dementia praecox grafted on feeble-mindedness, an affected lung and a heart lesion for good measure. It was apparent to the casual observer that the boy was extremely backward and stupid. While he lay in jail in Chicago awaiting extradition, it was rumored that an Ohio mob was arranging to lynch him. An Ohio judge on a plea of guilty sentenced him to death. By primitive and barbarous standards, the sentence of this boy can be justified on the ground that it is better for society to eliminate him, but in the light of modern scientific knowledge such a sentence ought not to stand any more than it should stand if it were shown that he was insane. This boy should have been identified before the offense. Had those

who came in contact with him realized his lack of intelligence and control they would not have dealt with him in a way to cause him to kill.

During ten years experience as a public prosecutor in the Criminal Courts of Cook County the fact was constantly being impressed upon me that large numbers of the criminal classes were defective to the extent that their defect was the cause of their criminality. Especially was this so of many offenders of adolescent age.

The static character of criminal statistics the world over; the fact that the criminal age, when most first commitments occur, appears early when responsibilities come and ranges from 16 to 22 years, and that only two per cent of the population are ever charged with crime, always impressed me as significant facts pointing to something inherently defective in the race. The investigation and research of the alienist and the psychologist tend strongly to confirm this belief. Of the defects of the race none is attracting more attention on the part of the physicians, court officers, social workers and legislators than is feeble-mindedness. The number of feeble-minded in this country, according to the best authorities, is about 300,000. These range from the idiot, who requires custodial care, to the imbecile who is quite harmless, up to the highest type of the feeble-minded, known as the moron or borderland case, in which group are to be found the most dangerous individuals. The moron, to the superficial view, is often considered normal, though perhaps somewhat dull and backward. He is unable, however, to compete on equal terms with his fellows and he is unable to manage his own affairs with ordinary prudence.

In the small villages of the country they frequently pass as normal persons, but in the stress of life in a great city the fact of their deficiency becomes quickly apparent. To this class belong a large number of the vagrant tramps; the repeaters in the houses of correction, the petty thieves, the alcoholics and many murderers. Many of this class, not being able to compete with their normal fellows, become objects of charity, or adopt criminal careers. They become beggars and paupers. They are generally unemployed because unemployable. The women of this class form, in my judgment, a large per cent of the women in the slums of the under-

world. It is now generally believed by competent investigators that fully twenty-five per cent of the inmates, male and female, of jails and reformatories and penitentiaries belong to this class. The money society lays out upon them at the present time in the matter of police and court expenditures, their maintenance in work-houses, reformatories, jails and penitentiaries, should be used before they become inmates, and in a preventive way.

Mental deficiency as represented by the three types of the subnormal which have been mentioned occurs in all classes of society from the highest to the lowest. The defect may be in-born—germinal—and therefore the hereditary failure of the higher structures of the brain to develop, or it may be acquired, as for example, through an accident or injury to the brain of the child in early life. The failure of the development of the brain may be due to injury of the child at birth from prolonged and difficult labor. It may also be due to injuries inflicted by the midwife or careless attending physician.

There is still another group which includes all of those cases due to arrest of growth of the brain from such causes as maternal injury or diseases affecting the developing embryo. These may be said to be congenital, as for example, that infectious disease syphilis, known as the black plague, which is responsible for so much physical and mental deficiency. The lower we descend in the social scale the more we find the effect of this disease among females. Dr. Mott of London has said that general paralysis of the insane, the essential cause of which is this disease, becomes more and more common among females. Drink, tuberculosis and lack of nutrition also contribute in causing mental deficiency, by injuring the germ plasma and poisoning the blood, when acted upon for long periods of time.

An important distinction must be made between two groups of the defective classes, those who may and those who should not enjoy social privileges as members of the community. From a racial and eugenic point of view the inborn or hereditary defectives are by far the most important because the defect is germinal and, therefore, transmissible to the offspring. This class forms seventy-five per cent or more of the defective classes. The other twenty-five per cent or less, those whose defect is acquired due to ac-

cidents at birth, negligence of physician, etc., are not so dangerous because their defect is not transmissible.

What shall be done to cope with the situation? In the first place these defectives must be identified. This is the province of the alienist and psychologist. In the Municipal Court of Chicago we have segregated certain classes of criminal cases in special courts, the principal ones being the Court of Domestic Relations, the Morals Court and the Boys Court. In the last named court are brought all cases against boys ranging from 17 to 21 years of age.

These courts bring together daily in one place in this city material for the greatest clinic of abnormal psychology in this country. Recently a psychopathic laboratory has been attached to the Municipal Court, of which the three courts mentioned are branches. In the words of the director, Dr. Wm. J. Hickson:

The plan is to have an experimental, as well as a practical laboratory, similar to the laboratories of Kraepelin, Ziehen, Bleuler, Sommers, Bonhoeffer, Raymond and Janet, and others in Europe, except that it will be devoted exclusively to court cases, thus specializing it.

The medical, psychiatric, neurological, psychological, anthropological, physiological, pathological and sociological sides of the subject will be studied, diagnosed, prognosed, and data accumulated for further application. Such a laboratory will be really a collection of laboratories, and when this becomes an established fact its contribution to the solution of the problem of crime will be invaluable, not to mention its valuable findings to the branches of science themselves, which are involved.

The laboratory has only been in operation since May 1, but in that short time important facts of grave import have come to light. Of 245 boys examined from the Boys' Court only 18 were found to test normal, on the Binet-Simon scale; only 7.34 per cent of this group had a normal intellectual development. Of the 245 boys, 20, or 8.16 per cent were borderland cases. Of the 245 boys 207, or 84.49 per cent were found to be morons. Their average chronological age was 19 years; their basal age 9 years; their mental age 12 years. Since the mentality is arrested at 12 years, here it will likely remain for the balance of their lives. Lesions of the central nervous system are indicated in all these cases. Heretofore the criminal law has dealt with this class as criminals and they have been

sent to jails, houses of correction and penitentiaries. While society must protect itself from the defective, modern scientific knowledge forbids us to treat them as criminals when they have not the intelligence, the judgment or control to get on in the world without oversight and care. Farm colonies for this class is the solution. These unfortunates represent the waste material of humanity, 75 per cent. by reason of heredity; possible 25 per cent by reason of injury to the brain at time of birth or in early life. The attitude of the criminal law towards this class must change and the statistics from the psychopathic laboratory will surely point the way.

It seems that we are on the threshold of a new era in our attitude towards a certain class of so-called criminals.

Many interesting cases come to the laboratory, as for example: A sadist of Jack the Ripper type was identified in the laboratory. He was a mere child, scarcely more than a baby and yet he had killed cats, chickens and made an attempt on another baby.

A cretin, 34 years old, was brought in for wife and child abandonment. He scaled ten years of age. Before the establishment of the laboratory he had served a sentence of five months in the Bridewell for a similar offense. The wife was also a cretin. These little dwarfs had four dwarf children. The children were brought in, and as you know the administration of thyroid gland will bring these children to physical and mental stature.

A woman claimed she was eight months pregnant in order to secure more money from her husband. Examination proved her not to be pregnant at all.

In a bastardy case the examination of the child showed that the accused could not be its father, which the mother then admitted.

Both the Morals and Domestic Relations Courts contribute both insane and feeble-minded men and women. One woman 34 years old scaled eight years, and has become a mother almost yearly, thus contributing to the stock of feeble-minded.

Numerous cases of dementia praecox come to light.

The judges of these courts are aided in dealing with these cases by reports from the labo-

ratory. The judges themselves are becoming informed. The laboratory will in time guarantee the scientific capacity of the criminal judge.

The development of branch courts with resulting specialization, expertness, equipment for meeting current needs and opportunity for adopting constructive policies, has proved that a city court can be much more than was deemed possible only a few years ago. It has proved also, what a few understood, that the court is the one most significant social factor; it is the gateway through which must pass all those who need the counsel and assistance, as well as the restraint of their fellowmen.

The history of the branch courts in Chicago shows that a court is much more than a mere passive arbiter; that under modern metropolitan conditions a court has necessarily a profound social duty. Without in any way impairing the nature of the obligation that the court must be essentially the judicial branch of government; it must give a larger meaning to the word "judicial" in an age when society is bent upon remedial action, when it is necessary to throw light into the dark corners of our civilization and procure data essential to constructive treatment of social ills.

But to return from the courts to the larger question: Having identified the defective, what then? Treatment will rescue many of the borderland insane. The feeble-minded so far are generally hopeless and yet it must not be forgotten that your profession has overcome hydrophobia, tuberculosis, infantile paralysis and cretinism.

Our laws must be recast in the light of your discoveries. In place of the bungling law of our state relating to insanity, we must write something similar to the German Code which reads:

There is no punishable act if at the time of commission, the actor was in a state of unconsciousness or of morbid disturbance of the mental faculties which excluded the free determination of his will.

It is seen here that through the text of this paragraph the question of guilt is identical with the question of mental soundness.

We must establish farm colonies for the feeble-minded. We must segregate the feeble-minded women during child bearing age. We must adopt sterilization where that becomes necessary. We must pass laws preventing the marriage of the feeble-minded, especially those who

are such by heredity. The tax-payer will find that these measures, instead of increasing his taxes, will reduce them.

Twelve states have no laws at all upon the subject of the marriage or divorce of the insane, feeble-minded or epileptic. Thirteen states have no homes for the feeble-minded. Twenty-three states have no colonies for the epileptic.

Your profession should and will take leadership in bringing about reforms. Preventive medicine can accomplish what the courts and jails have failed to accomplish.

It is, therefore, a great satisfaction to find from your programme that you are on the job. I hope the physician will enter public life more than he has heretofore. We need his knowledge in shaping our laws.

I hope you will have a profitable session and that the press will spread broadcast the information your speakers will impart.

In closing let me congratulate you upon the opportunities that are yours because you belong to the greatest profession.

SOCIETY LARGELY RESPONSIBLE FOR THE MOST POTENT FACTORS OF NERVOUS AND MENTAL DISEASES.

CHESTON KING, A. B., M. D.

Proprietor of the Cheston King Sanitarium.

ATLANTA, GA.

It has been beautifully expressed by Kant: "There is in every man a divinity, the ideal of a perfect man, conforming to the type according to which God fashioned him; just as in a block of Parian Marble an image of a Hercules or of an Apollo would be found if a divine artist had traced there, by means of the natural veins of the marble, the contour and form of the future statue."

This statue, it should be the aim of society to free from the rubbish that conceals it—to evolve its form, to reveal to our consciousness this inherent ideal of Divinity, enabling mankind to realize it, by aiding the development of all of those germs and dispositions placed within us by God, when he made man according to his own image and disposition, which constitutes our rational nature.

Instead of this condition existing, we see so-

ciety encouraging imprudent speculation, intemperance and vice, augmenting the desire to gain wealth by speculation, rather than by honest labor and virtuous efforts, converting our youth into idle vagabonds, filling our prisons and penitentiaries with defaulters, forgers, bank robbers, thieves and murderers.

Is the owner of your gilded saloon, gambling and drinking hells in Chicago, however high he may stand in church and state, more holy or noble than the miserable, driveling drunkard who staggers into our hospitals, or is committed to our asylums or prisons? Is it not a fact that society looks upon the vitality of the race and the health of the family in an indifferent mood? Our prisons and asylums bear testimony to the fact: That the communication of disease in marriage is a matter between husband and wife, and society has nothing to do with it. Did the African slave trade, with its floods of poisonous rum and the untold horrors of the middle passage as conducted by the merchants of the New England states in the seventeenth and eighteenth centuries, yield finally any other result than the gigantic bloody Civil war of 1861-1865—whereby the soil of the United States of America was drenched in the blood of her sons and the entire land clad in the garb of sorrow and mourning?

Can the heart of a great state, as revealed in her laws, be rotten and her children be pure, healthy and virtuous? What inducement is there to honest labor and virtuous endeavor, when the mother, a leader in society, a woman of untold influence, spends the greater part of her time, mentality and energy in what she terms innocent and instructive amusement, in being the victor of a prize at a bridge party that would equal in cost the heaviest losings at a \$1.00 limit poker game during a sitting of four hours? In other words, she points to the gaming table and the deceitful smiles of chance as the royal road to caste, to wealth, to position in state and church.

The laws of the state are defective, society is rotten, when they do not consider man and his offspring from the following standpoints:

1. The development and perfection of the individual physically, intellectually and morally, for time and eternity as an individual.

2. The development and perfection of the

individual physically, intellectually and morally, with reference to his fellowman.

3. The development and perfection of the individual physically, intellectually, socially and morally with reference to his relations to his Creator, in time and eternity.

As society should be the fountain of life and strength to the state and nation, we cannot have a law-abiding and united people, a vigorous and healthy national life, when the offspring is morally and physically defective. A wholesome respect for the sanctity and majesty of law must first be engendered in the heart of the boy and girl in their own home and by the father and mother who bore them. We cannot expect the development of a pure, healthy and noble race of women and men, when the blood of the mother and father has been poisoned by the contagion of vice and the debasing effects of syphilis. Can the vulture breed the eagle? Can the jackal engender the lion? Can you have a double standard of laws? Can society condone in man what is unsparingly condemned in woman—which it accepts as excusable in one and decrees to be unpardonable in the other?

With open doors and open heart, the father of a family welcomes to the sanctity of his home men of political influence and wealth, but whose lives are saturated with the iniquity of vice, born and nurtured in the company of immoral women.

Again—our fair debutantes are often the prey of titled foreigners, whose lives have well been spent in riotous living. Exclusive society bids him a hearty welcome, and social leaders vie with one another in their cordiality.

It is a well established fact that—"Whatsoever ye sow that shall ye also reap"—and it is up to the fathers and mothers of our land to see that the sowers of vice in all of the different phases which could be handed down, be not transmitted to their daughters. For how often it is the case, we as physicians see innocent wives and children the victims of venereal diseases and the husband and father is the bearer of this venom, which has left in its wake the wreckage of hope, of health, abortions and diseased children.

It has been well said: "For social crimes and their pitiful consequences masculine unchastity and that false social code, which fosters and promotes it, are largely responsible."

If you ask me the remedy, I would say: Let every man's standard of social morality be elevated. Proclaim to the world that the libertine cannot enter your home. Ostracize the social circles that entertain him. Do not absolve the male offender against immorality while condemning to social infamy the female offender.

Health has ever been looked upon as, the first of all blessings, and as immortal beings, and as members of a profession which deals with immortal beings in their last extremities, you cannot, if you would, shut your eyes to the importance of moral and scientific education.

We have three sources for the spreading of this education, viz.: The press, the educators and the clergy. Is it being accomplished? Yes, scientific education is making rapid strides in the elimination of the social evils, but social hygiene has accomplished little.

To illustrate: In the great daily press of our country you see detailed on the front page in the most prominent type a disgusting account of domestic intrigue and the social ruin of someone of the inner circle—whose life or lives have been ruined by venereal diseases; while the downfall has been vigorously painted to pander to the prurient and depraved taste of its readers, no mention is ever made of venereal diseases, which have wrecked their lives. While I can appreciate the attitude of the press on this subject, yet is there not some inconsistency when it often speaks of prostitution, adultery, and other violations of moral acts, yet it shrinks from speaking of a common pathological consequence that affects all humanity, and is lowering the standard of our social atmosphere.

The clergy and educators stand in awe at the thought of imparting to our young women and young men a knowledge of the hygiene of the reproductive functions.

Until there is a general awakening on the part of the medical profession and no longer venereal diseases are branded by another name, until society welcomes knowledge on this subject, which smites the innocent wife and her offspring, until the press wages a campaign of education against prostitution, the purveyor of this infection, until the ministry throws aside the false social code of morals, which is opposed to the moral code of Christianity, which condones in man what it condemns in woman, and until our high schools

disseminate the knowledge of *sex hygiene*, we live in a day and time of science which is defective, for man is not comprehended in all the various relations of his physical, intellectual and moral nature. The great fields for this development of the human race are:

1. The family.
2. The church.
3. The physician.
4. The university.

The earliest education of all times is that of the family—it is the fountain of life and strength to the nation.

Show me where it has been neglected, and I will show you lives of physical woes, taunted nerves and mental deficiencies. From the earliest time, the church has been the forerunner of education, and the salvation of our race. The belief in the immortality of the soul and of a future existence of pain or pleasure, in accordance with the good or bad acts of an individual, has been widespread at all times, and amongst most races, and has given form to beliefs and rights.

The scientific physician is the Nation's guardian of public health. He is entrusted with the lives of his fellow men; his life is spent in nearest communion with the sick and dying, in sight of the very gates of eternity. From a sociobiological point of view, he is the most potent of all factors in emancipating from the social evil. To the most modest woman, without offending her most delicate sensibilities, he can speak of sexual life and its diseases, and how often he can forestall the shadow that has fallen over many a home and blighted lives with wrecked nerves and a tortured mentality. The highest type of the physician today is the moralist as well as the hygienist.

* The material body of man, with its complicated machinery, appears to have been constructed with exact reference to the action of the intellectual and moral nature.

Ancient Greece gave us the heritage of an intellectual, moral and political education. For the pure life, the health of body and soul, we point to Plato, the Athenian, the pupil of Socrates, whose works remain to this day the great models of Athenian genius, elegance and urbanity, and whose philosophy has been the admiration of all ages.

The thirteenth, fourteenth and fifteenth centuries witnessed the rise of great universities and today the strength and bloom of our American Nation is felt in the great power of its educational centers. Natural science and learning receives its most vigorous impulses from the scientific centers. Men of the greatest learning and research have celebrated the power and influence of universities upon the progress of civilization.

So, to these powerful agencies we must look for a healthful, moral life. They must say to society—your code of morals must be clean, *social prophylaxis* must be the pass word, licentious living, which is a companion of venereal disease, shall not be tolerated. Yet we know that society today welcomes to its ranks the libertine, who regards not the sacredness of the home circle, nor personal purity, or respect for the sacredness of the marriage vow and scatters in his life the germs of infection.

Society owes it to God and our Nation to hand down to posterity a vigorous manhood and womanhood and thereby wipe out the great social evils, alcohol and syphilis, that are giving us a heritage of moral and physical weaklings, and taxing our respective states for appropriations almost beyond endurance.

Conservatively estimated, there are today in the United States three-quarters of a million of insane and mental defectives, at an annual cost of about \$110,000,000. And this does not include the border line cases or epilepsy.

The figure would hardly be exaggerated, if we computed in each state the number of its insane and those of weak mentality not cared for by the state, at the round figure of one million. And yet one quarter of this million are allowed to propagate their species, which if we did not wage a moral, social, political and physical campaign against, history would in the course of time brand us as a nation once powerful, but now degenerated.

As students of difficult and useful sciences and practitioners of medicine, and as citizens of a powerful and free nation, which today is fulfilling a high political, religious and scientific mission amongst the nations of the earth, the medical profession's watchword must be—*Preventive Medicine*; society's watchword must be—*Social Hygiene*. The family is the unit of society, of the village, town, city, state and nation. From

the union of man and wife and from the fruits resulting therefrom, the nation has its perpetual fountain of life and strength. If the fountain be impure, the stream will be foul. Households founded and conducted in violation of the laws of hygiene are standing menaces to the public health. The syphilitic father not only breeds a syphilitic child, but places galling shackles on society.

The injurious effects of alcoholic liquors and narcotics have been thoroughly demonstrated by our profession. A ban should be placed upon it in society.

While athletic and gymnastic sports are of great value to our young men and women, and should be encouraged, yet how often we see their deadly work, by being too excessive, or too violent or too rapid, and ailments following, which often fatally diminish or impair the nervous, muscular and vital powers. Many a young man has been sacrificed to over-exertion in the gymnasium and in the violent struggle for mastery in rowing, swimming and ball playing. This but demonstrates that the American people, as a whole, are extremists and are prone to nervous disturbances. Educational institutions must conform their standards to the demands of public health service, teaching the youth of our land that the stronger race must protect the weaker, that the white race will always be the dominant factor of civilization and that no greater crime could be concurred in or perpetrated in the annals of humanity than the amalgamation and mongrelization of a superior race with an inferior, or the political subjection of the former to the latter.

Then we shall be like the coral insect, helping to rear an edifice, which emerging from the vexed ocean of conflicting credence, shall be first stable and secure and at last cover itself with verdure, flowers and fruits and bloom beautiful in the face of heaven.

THE DUTY OF THE STATE TO PROTECT SOCIETY FROM DEFECTIVE INDIVIDUALS.

W. S. LINDSAY, A. M., M. D.

TOPEKA, KANSAS.

A lively interest in the very young, the very old and the defective members of society is an exponent of civilization.

Organization of society for human welfare must rest on the basis of the greatest good to the greatest number and of necessity must assume authority to formulate and enforce rules at once careful of the interests of the fortunate as well as the unfortunate.

So great has become the burden of caring for the unfortunate that the expense of our various boards of charities and correction is approximately one-half of the revenue of the various states.

The states generally make ample provision for their criminal as well as insane subjects; some, notably Minnesota, Massachusetts, and recently New York, have exercised a friendly supervision over the paroled and discharged cases as well.

This is all very commendable, but in a survey of public work, I think we may discover a lack which we all appreciate. I refer to the care of border-line cases of mental bias and turpitude, which may not be classified.

The mild paranoiac, particularly the alcoholic paranoiac, is a troublesome border-line case, yet close observation for some time will make it possible to classify this and bring it under the rules of admission to a state institution.

Outside of the common forms of mental derangement, we all recognize defective individuals whose liberty entails a menace to society.

You are called as examining physician to report to a commission in the Probate Court. You find an individual, lacking in moral quality of minor character, but who has sufficiently keen perception to pass the tests for imbecility.

A case I have been observing for several years illustrates this.

Carl S., at two years of age, was taken from an orphan asylum by a man and wife without children, careful and industrious people who devoted themselves very largely to the care of the child. He was bright, in full possession of senses and in every way satisfactory till at the age of six he was caught in a petit theft. Small irregularities of conduct occurred till at seventeen he was sent to the State Reformatory for stealing a bicycle.

The fond foster-mother shadowed the offices of probate judge and governor till a pardon was secured. The young man was then apprenticed to a horseshoer, where he worked more or less assiduously for several years.

During this time he was married and shortly afterward I found he had syphilis. He drank whiskey to the extent he could get no work. A place in a rural community was secured for him, but not being able

to meet the requirements, he soon returned to his ever-indulgent foster-mother. Frequent small thefts and intoxication resulted in his being sent to the asylum for insane, only to be released on the mother's pathetic appeal, together with the fact that the case could not be classified as insanity.

The use of morphin and cocain was now resorted to and after many months a systematic hospital course of treatment was had, which relieved the trouble for six or eight months.

Small thefts were numerous and the articles taken were sold. Guests in the home had money taken from their purses, furniture from the house was taken and sold, and, whenever such articles were found, Carl would smilingly run along and assist in returning them.

A recent application by the foster-parents for relief from the annoyance and disgrace was answered by the county attorney with the suggestion that the parents move away and lose Carl.

Clippings from local papers of the past year are as follows:

"Carl Smiley, who was in the State Hospital for the insane several years ago, and since his discharge from that institution has been tried for his sanity three times and acquitted, was arrested last night by Chief of Police Josiah Ross and Patrol Driver Calvin.

"Smiley is charged with stealing two wrenches from S. Stanton, of 212 West Sixth street, on last Thursday. It is said he admits he took the wrenches and that he sold or pawned them. Smiley appears to be a confirmed kleptomaniac, and several times relatives in Topeka have located jewelry and silverware in Topeka at pawnshops where the goods had been taken by Smiley. Finally, a few weeks ago, relatives had him tried for insanity in probate court, but he was acquitted. The charge against Smiley is petit larceny."

"Carl Smiley, arrested four times within the past few months for alleged insanity, was taken into custody Saturday night on the charge of petit larceny. Smiley was arrested by Chief Ross and Officer Calvin."

"The police have been asked to pick up Carl Smiley, well known in police circles, upon investigation. Santa Fe special officers charge that Smiley recently stole some drills in Chase county, where he was supposed to be working in the harvest fields."

A few weeks ago, while traveling out in the state, I sat by a benevolent and philanthropic gentleman who proceeded to tell me of his discovery of a most worthy case, needing direction of his energies and, incidentally, a new suit of clothes. When I returned home, another newspaper item told of Carl having unworn the new suit and being in police court.

Such a case as this you recognize as defective, a menace to society, but your report to the court is likely to be acted upon as this one has been on numerous occasions. In your report you can tell of no delusions, no incoherency, no mania-

cal conduct, no failure to pass tests for imbecility.

What shall we as physicians advise for guidance in this country?

In the application for admission to a state hospital for insane, the common form is "We have seen and examined A. B. and believe him to be insane and a fit person to be sent to the state asylum."

My suggestion is to so change our statutes that a finding in probate court may be as follows:

We have seen and examined A. B. and find him to be defective and incapable of managing his affairs.

Provide that upon such findings a warrant be issued as under the present form.

Provide the state hospital with facilities for industrial employment.

Provide that after residence of one year, sterilization of all such male patients and all such female patients, under the age of 45 years, may be done on the order of the superintendent of the asylum.

Our present Kansas law of sterilization is inoperative on account of costs and court requirements and has been held unconstitutional by a district judge. Judge Smith McPherson of the U. S. District Court in Iowa, Judges Pollock and Walter I. Smith, concurring, has rendered a similar decision.

As I understand the latter decision, it applied to punishment for crime and did not touch the question of eugenics, but a reasonable inference, from the report, shows antagonism to sterilization.

These men of undoubted prescience and erudition "see through a glass darkly," as Paul said, referring to the evolution of the Christian religion.

I have not the opinion of the court in full, but with so important a condition as this confronting us, it seems to me that some plan should be evolved whereby this operation could be entrusted to the judgment of competent men.

During the past month the English government has brought into force a regulation known as the Mental Deficiency Act, which provides for the care, in institutions, of a large number who may be classified as wastrels or prodigals with weak wills and limited intelligence and those who from an early age exhibit vicious pro-

pensities. The county and borough councils are instructed to ascertain what persons within their jurisdiction are defective and are bound to provide for them.

The right to regulate and control reproduction is coincident with the right to perpetuate the nation and the race and is in line with such laws as eminent domain, heroic measures by boards of health, beginning with Moses' regulation that the leper should be kept without the camp and including the suggestions I have made, all of which an educated public sentiment will soon support.

DISCUSSION.

DR. THEO. A. DILLER: *Mr. Chairman, Ladies and Gentlemen:* It is said, "talk is cheap"; that we talk too much, that is, doctors in general. Dr. King has talked. He has repeated things that have been said before; yet if we reflect a little, great things involving the reform of society, involving fundamental conception of things, can only be brought about by talk and repetition; so I think there will be no excuse offered for the rediscussion of this subject which is now before us.

This question of the prevention of insanity which Dr. King has dealt with is largely a moral question. It is a scientific question only secondarily and there is the hard thing about it. I think gentlemen are making a terrible mistake, a tremendous mistake, who say that if people only knew, if they were only informed, they would not do thus and so. Yes, they would. I favor dissemination of knowledge in the right way, the right time and the right place. I have not made up my mind as yet, with regard to sex hygiene. The youthful mind is intensely curious and the thing that is told a boy or girl in the way of warning may act in a pernicious way. Let us go slowly and let us go carefully in this matter. A gentleman said to me—a man cultured, a man of affairs—"My little daughter is to be married." We were sitting in the lobby of a hotel. The man was known to me and his mother was known to me to be insane for 30 years. She has a great deal of money but they are going to run the chance. They have probably heard that all sons of insane women will not carry the strain onward and there is a certain chance; now, you will see things like that over and over again. You could give mothers in the city of Chicago the pedigree, a terribly bad pedigree of a man and if his social status was right, the bank account was right, they would allow their daughters to marry him. They don't want to be informed; they don't want to see. This question is first of all and primarily, a moral, a religious question. I am not a member of the Holy Roman Church but I congratulate and respect that organization. They have a fine teaching system for their children in the schools and in their homes about these sexual matters. Gentlemen, this is first of all a moral and religious question,

a matter of education comes in but it is very distinctly secondary.

DR. LEWIS: It seems to me very propitious that this meeting should open with questions upon the subject which is practically the foundation of our whole work. The question of the defective—what shall we do with him. How we shall handle him is not simply of today but if the question is properly solved now it will do more to solve the questions of the future than anything else and I believe that we should give it very serious consideration. I think in many instances, we have begun at the wrong end of the trouble and, differing with my friend, I think that the question of public education is of vital importance. I believe that the people should know that certain results will follow inevitably certain conditions and to accomplish the best results in this line. I think we must begin at the foundation; if we enact laws, enact them in regard to those cases where there is absolutely no doubt, no question, and where no mistake can be made. Any action that we take, unless it be taken with the support of the community will necessarily be a failure and if we attempt to go too far now and start out or work upon higher lines than the community is ready for we will meet with failure and we will be set back in our progress. I hope that such action will be taken now or during the course of these meetings as may lay a firm, solid, substantial foundation which will gradually become the basis of a completed structure in the future.

DR. SOLOMON: *Mr. Chairman, Ladies and Gentlemen:* I think that Dr. Diller has struck the keynote of a question which we ought to decide here. It seems to me that the spread of the knowledge which we have is absolutely essential. If you do not give the motive or the reason for the law, or the moral standard which you have, you are not really forcing home the issue. If you endeavor to set down certain fixed rules, as to the method of living, as to hygiene, whether it is physical or mental hygiene or any other variety of the subject, the first essential is spread of the knowledge we have and with understanding of the motive then the conduct will be so much more assured. The fact is, that the set of meetings which we have here is for the object of finding out the fundamental things which bring about the forms of mental disturbance, of mental aberration in one direction or another and without a spread of those, the movement will not advance at all; people are not going to do things just because you tell them. If you tell the reason for it, you are much more apt to have the people follow out the lines of conduct; of morals. The issue, however, is how far are we to go in the spread of the knowledge; how far, for example, in the spread of sexual hygiene; that is really the only issue. There really ought to be no discussion of all the knowledge we have—whether it is medical, sociological, eugenic or of any other department.

DR. PUNTON: I think that Dr. King has been recognized by the leading medical men of this country for a long time but after hearing his paper, it re-

ninded me of a leading lawyer in our city who at one time was called upon by a great many of our citizens to nominate himself or allow himself to be nominated for the governor of the state. He answered, he did not wish an office of that kind; he had other business to attend to besides that kind of politics. He preferred to remain in the rank of the educator without so much public agitation. I am inclined to believe that is true so far as medicine is concerned. We cannot bring medical reform until the men are educated and until they are educated in the proper way. This is largely a moral question as well as a scientific one. We cannot bring about any change simply because we are medical men. We have got to get in touch also with the lawyers and with the preachers and with the best people of the community. In other words, there is to be public sentiment back of any reform. I was very much interested in the paper by our friend, the lawyer (Judge Olson), this morning. He ought to be presented with a diploma of medicine, for he illustrated his knowledge of the leading and up-to-date scientific facts of medicine. It seems to me, if all would see as he sees it, it will not be very long before we would have laws which are pertinent to the laws we are now considering. In the establishment of this criminal laboratory, as he expresses it, it cannot fail to bring a large amount of good as well as correction of this defective, delinquent class.

DR. HENRY S. MUNRO: There is no expression of the mental separate from the physical; that is, the treatment of mental and physical diseases cannot be separated. Mental diseases, so called, are frequently merely the expression of some general pathological condition, such as specific infections, abnormal internal secretions and other conditions associated with disordered metabolism. Science knows no such thing as morality. It states facts and it is facts that count. This is not a moral or religious—it is a scientific question.

DR. STOUT: You have the evidence—you are the jury, part of it. What are you going to do with them; they are a menace to society; what are you going to do with that character? A few years ago I heard a noted lawyer tell this story: A farmer was taken to an insane asylum; he looked it over very carefully and found that they were propagating their own kind. The gentleman was taken around and he said, what are you going to do with them? The old farmer scratched his head, thought a minute and this idea struck him, that the best thing to do with them, was to treat them as they would treat derelicts from the farm. Those that live on the farm will know what I mean. Sixty years ago or more, in *Harper's Magazine* was published an article, "What shall be done with skrugs?"—skrugs represents the criminal class. It was a long article and finally this conclusion was reached: One-third were amenable to treatment and reformation; one-third should be confined to the penitentiary for life; and what about the other third?

He suggested an island in mid-ocean and let the island sink.

JUDGE OLSON: I have great faith in the establishment of the concrete example of the working together of the doctor and the court. Right here is an important thing for men in your profession to realize, that the immediate future is to make a large demand upon you in a way that it has not done in the past. For example, the doctor in charge of our laboratory will ask for additional help very soon and other cities will establish laboratories and they are going to ask for more help and I think the demand is going to be upon you very strong in a few years. The training necessary to hold those higher positions in those laboratories is, of course, very great. The man must be a neurologist, he must be a psychologist, he must be able to take tests and the tests necessary for diseases and blood poison; it requires rather a wide training, so that an exceedingly great demand will be made on your profession by the public in the very near future. We are going to have a city laboratory, I think the city of Chicago in the next two years will have a psychopathic laboratory in connection with the welfare department of Chicago. In New York City they have a corps of men at work and I think the public are waking up to the fact that the Women's clubs are doing great good. The gentleman a moment ago was afraid of what the women's clubs were doing. I believe they are going to be our salvation. Women are smarter than men; they are interested in life—they give life. My mother used to say about boys, that the older they got the more trouble they were. Men are engaged in making money and sometimes are not very careful how they make it. This speed of money making does not affect women as much as men. We, therefore, do not give attention to children as do the women and the women's clubs are doing something to clean up this country.

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MAN'S TENDENCY TOWARD ABERRATION.

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In these modern days of progress and of enlightenment we hear much of the science and practice of eugenics or race culture, of the role of heredity and of numerous other questions of biologic, sociologic, economic, medical and humanitarian importance. Most of the discussion along these lines is centered about the problems of the mentally defective, the delinquent and the dependent, the alcoholic and the other drug

habitues and the other abnormal and pathological character make-ups and types which go to constitute the large class of mentally defective and mentally disordered. In short, we are dealing with the protean mental aberrations. These frequently occurring and universally wide-spread aberrations are usually conceived of by most of us as phenomena which are so strange, so unusual, so mysterious and of such unknown and unknowable origin that they are surely far beyond the ken of the human mind. I need not call your attention to the frequency with which they are considered to be "things apart," things *sui generis*, which have no relation to the rest of us apparently normal individuals, things which must stand apart and be viewed with wondering eyes and in a different light from that with which we view the mental qualities and characterological units, the mental trends or types, desirable or undesirable, favorable or unfavorable, which are found to be inherent in the make-up of the rest of humanity. So much has this been the case that we find that special departments of study have necessarily arisen for the purpose of elucidating the mystery of the various aberrations of man. And each such abnormality or aberration is being studied more or less separately or individually, too frequently as something which is very peculiar and non-understandable.

It is my object in this paper to lay stress upon a subject concerning which, I believe, most of you will, on reflection, arrive at a not very dissimilar opinion. I refer to man's normal tendency towards aberration.

For some time past I have been giving considerable thought to three theories, which to me are facts, which seem to me to be of the greatest importance. I may enumerate them as follows: 1. Man has a uniform primitive mental make-up; 2. Man has a tendency toward aberration; 3. In the struggle of life, in the efforts for survival in the battle for existence, we seek happiness by self-expression and the gratification of the personal tastes and feelings in the best, most desirable, most convenient or most fit manner under the circumstances with which we may have to deal. Our method of self-adaptation or of reaction, of self-preservation or self-expression in any situation, follows the law of psycho-physical progression, fixation and regres-

sion along evolutionary and developmental lines, and is conditioned by our mental level and mental make-up as determined by the hereditary and environmental influences which have moulded us and are still moulding us.

I do not propose to develop these three theories in this place. I do, however, wish to direct your attention to the second theory—viz., that of man's tendency toward aberration. This problem has so many and such extensive ramifications that I shall do no more than touch very superficially upon the general problem under consideration. My statements will be of a general nature, and no efforts will be made at this time, to prove the truth of the declarations here made.

It is necessary at the very outset to explain what is meant in this paper by aberration, or rather mental aberration, since it is the mental aberrations which we shall consider. I shall call aberrant or abnormal any tendency which is retrogressive and which does not come up to the normal standards of conduct of the community. The tendencies which are outside the range of the normal or average, but which are progressive, useful, desirable and in the direction of the perfect or the ideal, although aberrant or abnormal when compared with the normal or usual, will not here be considered as aberrant or abnormal. In other words, I shall confine the terms aberration or abnormality to retrogressive tendencies which are undesirable and below the common standard of conduct. Genius and special talent will, therefore, not be included in this discussion of the aberrations or abnormalities.

The number of possible aberrations is very great indeed. They may be of many kinds, of any degree or in any combination. Single qualities or special mental trends; general trends; certain more or less complex clinical pictures or combinations of these pictures may occur as aberrations. For practical, working purposes, we may, however, indicate certain important and general aberrant tendencies. The following general groups may be mentioned as the most important in this connection: The feeble-minded; those excessively weak in will power and lacking self-control; the drug habitues; the psychoneurotics; the insane; the sexually aberrant; the criminal and delinquent; the prostitute; the dependent, the hobo and the vagrant; the cranks, the

ill-balanced and the eccentric. Many other smaller groups could be enumerated. But the classes here mentioned comprise the great majority of the mentally aberrant or abnormal. And it is this general class to which I refer when I speak of the mental aberrations.

The men gathered together in this meeting of alienists and neurologists are of course interested in such problems as the feeble-minded, the insane, the neurotic and psychoneurotic, the narcotic or drug habitué, the sexual pervert, the prostitute, the criminal, the hobo and the vagrant and many other classes of mentally defective, mentally disturbed and mentally aberrant. From a scientific and practical standpoint, it is interesting and important to trace the genesis and evolution of these separate conditions. This, indeed, is true biogenesis or psychobiogenesis. I shall not attempt this difficult task in my present paper, but I shall endeavor to point out certain relationships and to impress upon you certain viewpoints of a decidedly valuable theoretical and practical nature, and which should, I feel, give us a better, broader insight into and understanding of the tremendously important and complex problems touched upon in my passing remarks.

I shall first enumerate, without discussion or comment, certain self-evident, generally accepted truths which have indeed been given a firm footing, thanks to the influx of biological knowledge.

Phylogenetically, ontogenetically and embryologically, from both the anatomical and physiological aspects, our past histories, and hence the human make-up, is fundamentally and universally of one kind. This sameness applies to every organ and to every system of the body, including the nervous system with all its structures and functions, and to the body as a whole or as a unit. We all have the same organs with the same functions—the same relationships, the same life-history from the very genesis far back in prehuman days, the same evolution and development, and in all other respects we are essentially the same, anatomically and physiologically speaking. There are, to be sure, very wide variations within and certain defects or disorders more or less not within the normal range, to be found here and there.

It is now generally known that man has a universal possibility of or predisposition for or tendency toward organic disease—defective or

disordered functioning of one or the other or several of the organs or systems of the body. This possibility, predisposition or tendency varies considerably. In some cases we find that certain family strains seem to have certain special systems—cardio-vascular-renal, respiratory, nervous and others—which are more easily disordered in a general or specific manner than any of the other systems in their own bodies or than the same systems in the bodies of other people. But even aside from this special hereditary, in-born predisposition which exists in certain families, it surely is a fact, well borne out by observation and experience, that, varying in degree, man has a more or less uniform and universal possibility or predisposition for physical or organic disease. He has a universal polymorphous perverse physical predisposition or possibility. Any of us are apt, under certain combinations of circumstances, to develop defective or disturbed conditions of any of the organs or structures of the body—the heart, the kidneys, the lungs, the blood-vessels, the nervous system or what not. And this may be brought about by physical or mechanical or toxic or infectious or other traumatic insult or by physiological excesses. In no condition is this seen more clearly than in tuberculosis and in the diseases of the young and of the aged. The old German axiom, "Jedermann hat am Ende ein bisschen Tuberculose" is more or less true. To extend our generalization we have but to refer to the possibility of or predisposition or potentialities for organic disease in general, to lay down this dictum or truism: Every man has a certain predisposition for or may possibly acquire any physical or organic disease to which human flesh is heir. It is thus primarily a question of degree, the predisposition or the susceptibility varying with the hereditary make-up and the life-experiences. I need not mention the biochemical, internal glandular and other physiological and physico-chemical processes which lie at the root of these various conditions.

Now, not only are the physico-chemical, simple physiological and individual organistic activities of man of a universal make-up and subject to the same disorders, but this applies in like fashion to those higher and more vital functions of regulated respiration, circulation, ingestion, exercise, play, rest, sleep, and to the host of other

biological activities, functions and methods of action and reaction. These are instinctive and automatic in character, the degree of instinctiveness and automaticity varying considerably in degree.

Finally, we come to still higher, so-called conscious activities, both physical and psychical, which have to do not with the inter-relationships between the individual organs, but with the relation of the organic, psycho-physical make-up of the individual on the one hand to the environment on the other; that is to say, with the relations of and the adaptations of the individual to the society and the world about him. This interreaction and the resulting adaptation is what we call conduct in the social sense.

There will be general agreement by all of you to the proposition that all instinctive actions and feelings are relatively the same in all of us, the potentiality varying in degree.

In like manner we may agree that the basic biologic instincts or tendencies, physical, psychical or psychophysical, upon which all human actions, feelings, emotions and conduct are built, are found to be universally present in all of us. I need not here enumerate these instincts or basic tendencies.

Amongst normal individuals this principle of a uniform mental and physical make-up is granted as being self-evident and entirely true. So much so is this the case that I believe that I can say, without attempted proof and without fear of contradiction by those who give this matter sufficient consideration and reflection, that normal man has a single, uniform, primitive psychophysical make-up or constitution. As my paper will deal more particularly with the mental side of the individual, I may say, more specifically, that the human mind, past or present, however little or well developed, conscious or subconscious, so long as it be not outside the confines of that range which we may give to the normal, is fundamentally and essentially of a uniform, primitive make-up.

It may seem very strange to the disinterested onlooker, but nevertheless, it is a fact, that although most or all of you will readily agree, at least after reflection and observation, that all normal individuals are more or less alike and differ from each other mainly in the degree of development or intensity and in the various ad-

mixtures of the many instinctive tendencies, feelings and kinds of reaction or adaptation and of the numerous mental and moral qualities or characteristics, still, when we come to consider certain mental aberrations, abnormalities or deviations from the straight and narrow path, be it alcoholism or other drug habits, criminality, feeble-mindedness, the insanities, neurasthenia, hysteria, psychasthenia, and all the other so-called abnormalities, there at once arise considerable differences of opinion, different standpoints are assumed, various theories are promulgated, and certain more or less positive and definite conclusions are drawn with respect to each of these many aberrations, each one of which is now looked upon as a specific and individual, extraordinary and unexplainable phenomenon. Nor do we find so many individuals who are so willing to agree that these various conditions have their seeds of origin in the make-up and tendencies or at least in the possibilities of all of us, and that, at some stage, every one of us had or has a potentiality for or tendency toward or possibility for one or more of the defective, disordered or aberrant mental states.

In order to bring home my argument more forcibly, permit me to call your attention to the difference between the so-called normal and the so-called abnormal. The division into normality and abnormality is not so absolute or definite as some would believe or seem to believe. Mental normality and mental abnormality are relative conditions. They vary with the age, the sex, the nationality, the race, the moral and legal code and standards of each community. What is normal for a child of five may not be normal for a mature adult of thirty-five or for an old man of seventy-five. What is normal for a Frenchman or an Italian is not necessarily normal for a Norwegian or a Russian. What is normal in the cafe of a gay city in the wee hours of the morning is not normal for the traveler on the Sahara or for the dweller in the hidden recesses of Africa. And what is normal for one individual is not necessarily normal for the rest of us, even for those of us of the same age, the same religion, the same education, the same training, the same nationality and the same race. In other words, in judging normality we must consider the inherited familial and racial phylogenetic and ontogenetic make-up of the individual and

his environmental life-history. Each person must be judged individually and on his own merits. What we have come to call the normal is not the perfect, the absolute and the ideal but the usual, the common, the ordinary, the everyday, the average. And that which falls outside of what we as individuals or as groups of individuals would regard as the usual, the common, the everyday, the average range we refer to as abnormal or as aberrant, meaning by that the unusual, the uncommon, the extraordinary, the infrequent. And because of its infrequency and its unusualness we regard this or that quality or tendency as strange, peculiar, non-understandable, abnormal. The difference between normality and abnormality is a question of majority and minority—and the majority rules.

Depending upon the range of our experiences and the breadth of our viewpoints, and hence upon the limitations of what we would consider normal or average, our corresponding idea of abnormality or aberration is determined.

Nor do most of us appreciate that the so-called aberrations or abnormalities are but exaggerations or caricatures to more or less extreme bounds of normal tendencies or potentialities; that they are but a side-tracking or one-sidedness of one's energies and activities. They are, I mean, the activity of normal tendencies or possibilities present in most or all normal individuals expressed in exaggerated ways in the aberrations.

The question of the relation of or the dividing line between sanity and insanity is so *apropos* of this question that I shall say a few words in this connection.

The real difference between sanity and insanity is, essentially and fundamentally, one of degree and not of kind; it is a relative and not an absolute difference. Between the two extremes of positively sane on the one hand and positively insane on the other hand we find an uninterrupted series of intermediate mental states, which merge imperceptibly by a continuous series of gradations from sane into insane. We have, therefore, certain mental states which are just on the borderland, the so-called borderland cases. These mental states may be quite transitory or temporary, or they may be more or less prolonged episodic occurrences, or they may be characteristic of the individual's general tem-

peramental constitution or make-up and thus represent one or the other of certain specific mental types. The study of character, personality and mental make-up, of mental types and modes of reaction is most important. We must recognize the hysterical type, the neurasthenic type, the psychasthenic, the shut-in or dementia praecox type, the manic-depressive type, the cranks, the ill-balanced and eccentric individuals, hoboes and vagrants, sexual perverts and many others. These groups of cases go to form a large proportion of the classes which stand on the borderland, as it were, between the certain ground of sanity and the uncertain sands of insanity. It is these individuals who, under some great stress of strain or some new demand for adaptation, present a reaction which is but an exaggerated expression of the tendency or trait which has always been present in them but in a less active, less noticeable form. In insanity the multiform mental pictures, the peculiar conduct and the varied symptomatology do not arise *de novo*. All the conditions were there before, but in a less recognizable, relatively dormant or latent form. And it is in our disorders that the mind unearths, as it were, the hidden or only slightly active tendencies or trends which, at bottom, were more or less dominating the personality, making the individual just what he was. It is in times of toil and of trouble, of trial and of disappointment, of difficulty and of struggle, of new needs and of novel adaptations, that we show our mettle, the stuff whereof we are made. It is then that we unfold ourselves and develop qualities and resort to conduct which we, as well as others who thought they knew us, little dreamed that we were capable of. It is in such perilous periods in the course of our lives that the good and the bad in us, the depth of our character, our mental make-up, our type of reaction comes to the surface and holds full sway. It is in the mentally disturbed states that we see the underlying forces, for good or ill, that undermine the character and the conduct of the individual. And such a study affords us an opportunity not only to study personality and mental types, but, still better, an opportunity to study the mind of man, the tendencies and make-up of mankind. Here, indeed, is a fascinating, interesting and valuable side of psychiatry and psychopathology.

Without further developing this idea we may say that the activities and conduct in the insane and in the other aberrations are but expressions, frank and open, of tendencies or possibilities which were always there before, which were little or not at all cultivated, but which are now being brought to the surface or resorted to or cultivated for one reason or another. The general tendency is nothing new. It existed before, at least dormant. It is really only its degree and its particular manner of expression which is new. Numerous examples could be given, but one especially appeals to me at the moment. I refer to man's tendency toward ambidexterity. This is an unusual, uncommon accomplishment when it is well-developed in any individual. But let us remember that originally in prehuman days, we were ambidextrous, and that one handedness, usually right-handedness, was assumed because of certain biologic needs which I shall not here discuss; and that it was assumed to such an exclusive extent that it has truly become a loosely inherited trait, though by no means fixed. And let us further remember that left-handedness may be developed in conjunction with right-handedness, this being determined especially by practice and repetition. The reasons for this repetition or for fixation at or reversion to ambidexterity I shall not here discuss; but it is apparent that when we view ambidexterity from the evolutionary and developmental standpoint, with the various possibilities, probabilities and predispositions, we see that it is not such a strange, not such an extraordinary, not such a nonunderstandable or unexplainable phenomenon. It is the genetic, evolutionary and developmental standpoint which here comes to our aid, and, by making the condition so easily and definitely understood, practically brings it quite within the normal or expected range. As soon as a thing is understood it loses its mystery and its abnormality.

Let me repeat, then, that the difference between the normal and the abnormal is thus one of degree. It is merely the difference between the usual and the unusual, the slight and the great. The abnormal or aberrant have all the possibilities or tendencies or qualities of the normal, but in different degree, individually and relatively. The degree of potentiality and the proportionate relationship of the various ele-

ments in the combination are different. In the same manner the normal have all the possibilities or qualities of the abnormal, but in different degree, the latter being dependent upon the instinctive trends and the developmental history.

According to this idea, therefore, all the potentialities, qualities, tendencies and activities which we find in the mentally abnormal should be present or exist, at least as possibilities, in some degree, in some form, at some time, in the mentally normal.

I have stated that the human mind is, at bottom, of a single, uniform, primitive make-up or constitution. Since our phylogeny and ontogeny is the same and since the conflicts with which all men have had to deal have been more or less similar, man has developed a uniform mental constitution, with more or less similar mental trends or psychic tendencies. The predominant tendencies, the proportionate strength of the individual trends and the specific combination or admixture may differ, but the general goals or directions are the same. We all have the same instincts. The same feelings and emotions prompt us and guide us—but the proportionate relationship and individual intensities differ in all of us under different conditions or in each of us at different times or on different occasions. Still, the number of possible instincts, feelings and emotions are the same for all of us, and any of them may, under sufficient cause or provocation, be brought into activity, some more easily, others with greater difficulty.

Now, the number of possible methods of reaction, of dealing with certain situations or of adaptations, is limited and uniform for all mankind. During evolution and development a certain number of general reactions of a psychological and psychophysical nature have been developed. It is probable that many or all of these possible reactions exist in some measure in all of us, but there is a tendency for one or more of these methods of reaction to be most dominant or to be most easily aroused, but it is possible to cause many different types of reaction in the same individual under different circumstances, or a combination of two or more of these methods of reaction may occur at the same or different periods in response to the same cause or to different causes. According as our method of reaction is most easily aroused in one or the other of a num-

ber of general directions, we have one or more special mental traits or special character make-ups. Many of these types or characterological trends are undesirable, unfavorable, harmful to the individual, frequently antisocial—lead to inefficiency and are more or less retrogressive. A few of these more general character make-ups of aberrant type have been mentioned. They are the psychopathically constituted persons and include the hysteric, the neurasthenic, the psychasthenic, the unresistive and post-traumatic (with an intolerance for alcohol, fever and trauma), the manic-depressive or cyclothymic type, the shut-in or dementia praecox type, the cranks, ill-balanced, eccentric and paranoic class, the psychopathically depressive, the psychopathically exalted, and the psychogenic or symptomatic depressive groups, the dependent, hobo and vagrant, the criminal, the prostitute, the narcomaniac or drug habitué, the sexually aberrant and others.

There are combinations of these trends, some being present in greater, others in lesser degree or potentiality. Those who are of a neuropathic or psychopathic constitution, or mentally defective or unstable in one or the other of these directions, may, under sufficient provocation, under sufficient pressure, stress and strain, adapt to or meet the situation in one or the other or a combination of these general ways. It is thus that in the mental aberrations we see the dominant tendency or tendencies, as inherited or as developed during the life-time of the individual, which were the driving forces and upward strivings and emotional cravings of the individual prior to the development of the aberration. The aberration is simply an exaggeration of a tendency or possibility normal in the same individual before its appearance in exaggerated form and normal in some degree in the rest of us. Whether one becomes a neurasthenic, hysteric, psychasthenic, manic-depressive, praecox, paranoic, a criminal or what not or a combination of two or more of these depends on the special circumstances and the more dominant trend or trends, some or most of which are present in some degree in all of us.

Let us consider feeble-mindedness. The acquired form might have occurred in relative degree in any of us—due to prenatal, intrauterine or birth conditions which might have afflicted

any of us or due to the infections, toxic and metabolic diseases of childhood which may attack any developing child. Moreover, slight degrees of feeble-mindedness may occur in any person due to improper training, neglected education and other factors. Feedlemindedness may be of any degree. At the present time we consider it pathological and measure feeble-mindedness when the mentality is up to the age of 15, but not beyond. And yet an individual of 55 who has the mentality, in one or more respects, of another who is 25, or 35 or 45, is relatively feeble-minded. Furthermore, the defect may be in the emotional or moral sphere rather than in the intellectual sphere. At the present time we are grouping as feeble-minded only those who do not go beyond the fifteenth year mentally, and we are testing the intellect almost exclusively. What we call constitutionally inferior is but little different from feeble-mindedness. Nor should we fail to consider the many intellectual, emotional and moral defects, those mental imperfections and weaknesses which most or all of us have.

In mentioning the psychoneuroses I shall refer to what we are in the habit of calling neurasthenia, hysteria, psychasthenia, hypochondria and simple depression. Some of us have a tendency more to one than to the other of these states. Others have a tendency to an admixture of these types of reaction or adaptation.. Those of a neuropathic and psychopathic constitution have a greater tendency toward the psychoneuroses in general than the rest of us. But where lives there the individual who can say of himself that he will positively never develop a psychoneurosis, no matter what the combination of circumstances may be which he shall encounter? Almost all of us are potential neurasthenics. Which one of us may not develop a hypochondriacal or simple depressive state? Practically every woman and many men are potential hysterics. Many of us are potential psychasthenics. We all have certain mental defects, certain mental weaknesses, certain relative degrees of mental weakness, of feeble-mindedness (in the broad sense of the term).

That every one of us is a potential psychoneurotic of one or another kind is certain. The individual psychoneuroses are clinical pictures or syndromes which run one into the other by an

uninterrupted series of gradatory states. The syndromes are pictures or combinations of symptoms or qualities which exist in all of us. One or the other combination or admixture of them may occur in any of us for a greater or lesser period of time, under slight or great stress. Varying in degree we are all potential psychoneurotics of one or another type, some of one, some of another, some of a combination; some more, some less.

The psychoses may be viewed in the same light. Each one of us is potentially insane in one or the other or several of a number of general directions. That this is true of the organic psychoses, the toxic, infectious, exhaustive and post-traumatic states goes without saying; but I am referring here to the so-called functional and psychogenetic psychoses, such as manic-depressive insanity, dementia, praecox, paranoia, etc. Every one of us has the potentialities for one or the other or a combination of these conditions. They may come to the fore under certain special conditions, particularly in the mentally defective and unstable. When the psychosis occurs we see the predominating type or types of reaction for that particular individual, under the special circumstances of his life. Thus an insane individual may present a special type of psychosis or a mixture of two or more different forms with an atypical picture as a result.

I believe that every man is a potential drug habitué in varying degrees.

How many of us are subject to periods of relative emotional exaltation and of relative emotional depression or the so-called cyclothymic or manic-depressive make-ups?

Any of us may develop psychogenic or symptomatic depressions.

Some of us have a tendency toward depression and others toward exaltation on slight occasions.

Our unresistive and post-traumatic susceptibility is patent in all of us. Toxic, infectious and other traumatic conditions may affect any of us in a more or less similar way.

Freud has shown conclusively in all of us the possibility for sexual aberration. Each one of us is a potential sexual pervert. Each of us is a potential criminal and all of us are moral delinquents in some form or other, in some measure, at some time.

Polygamous and polyandrous tendencies con-

stantly beset us. The tendency toward prostitution varies in different women.

When one aberration comes to the fore, others are apt to present themselves also. For example, an alcoholic is very apt to show criminal tendencies, sexual perversion, or develop insanity. The insane individual, besides showing his general psychic trend or mode of reaction may show criminal tendencies, narcomanic trends, sexually aberrant inclinations, and other aberrant tendencies. In other words, the special character make-ups are but exaggerations of types of reactions present in one or the other of us. And the aberrations are only exaggerations of tendencies present or possible in all of us, in one or more directions.

What are the determining factors for the appearance or non-appearance of these tendencies or possibilities? It is determined by our inherited make-up (the inherent potentiality of our different instincts, trends and types of reaction), our developmental experience, our training, example and opportunity, our difficulties, our stress and strain, the degree of adaptation necessary at any time, the degree of our mental stability or instability, the degree of will power and intellect—in short, our stage in mental evolution and development, and the situation with which we have to deal. It is this which conditions our special tendencies or trends, frequently accompanied by other less dominant tendencies or possibilities, as a means of adaptation for self-preservation. It is thus that one or the other or several of the many methods of adaptation come to the surface.

Why should this be? Our phylogeny, ontogeny and present life-history are more or less similar. Our special or general trends differ in degree and proportionate relationship as determined by our history, our evolutionary and developmental make-up. All of us have inherited from prehuman days and from primitive man all the tendencies or possibilities of man—some more, some less. Under certain special conditions any of us may lapse toward barbarism or retrogress and show our special, exaggerated, aberrant trends or any one or more of the general trends characteristic of man or his forebear at a lower stage of evolution and development, at a lower cultural level. It is in the primitive man, the savage and the barbarian, in the child,

the immature adult, the feeble-minded individual, the individual with weak will power, of a neuropathic or psychopathic or neuropsychopathic make-up and in the disordered mental states that general trends, special trends or possibilities of a retrogressive nature may show themselves or develop. But the possibilities, usually in certain general or special directions, exist in all of us.

I already mentioned that if exposed to the inciting factor, any of us might develop one or the other of the toxic, infectious and other traumatic diseases of the nervous system, our susceptibility varying in degree. Thus any of us might develop paresis as a result of leptic infection. No man can tell which one of us might or might not develop this terrible disease if attacked by syphilis. And it is in the early stage of this very disease—paresis—that we see the trends or possibilities of mankind appear. Here we may find psychoneurotic, especially neurasthenic reactions or states. Drug additions, particularly alcoholism, may appear. Sexually aberrant tendencies may show themselves. Criminal tendencies may develop. And other tendencies of a like aberrant nature may abound. Excitements and depressions, paranoid states, katatonic states, etc., may come into the field. This applies not alone to general paresis; the same applies in different degree to dementia praecox. In fact, in every one of the psychoses we find aberrant mental trends characteristic of other psychoses or aberrations in which they are present in more exaggerated form. Thus the mind disordered or deranged or aberrant is nature's psychological laboratory and unearths for us the constitution or possibilities of man.

In the feeble-minded individual we see the same thing. Being of a lower mental order because of inherited or acquired conditions (the latter of which may affect any of us in the course of our development, with a not very dissimilar result) in which instinctive tendencies, feelings, emotions, actions, reactions and various methods of adaptation play their greatest role, in which mature criticism and judgment are lacking and in which social rules are not followed, in which adaptation is more instinctive, naive, retrogressive and natural, we find excitements and depressions frequent, the insanities are frequent, hysteria is common, criminality, al-

coholism, vagrancy and other mental aberrations occur with ease and with great frequency. Those are the natural tendencies of man at that level. The child, immature, can be developed along criminal lines, or sexually aberrant lines, or can be developed to show certain special psychoneurotic trends. Woman can be brought up in polygamy or polyandry. And so the story goes. The laws of habit formation are here supreme. Habits are but prolongations of our instincts and the number of instincts and habits are the same for all of us, the degree varying within wide limits.

The downward pull, the retrogressive tendencies, the aberrations may occur spontaneously or be cultivated, the ease or difficulty of arousing them, the transiency or permanence, the slightness or greatness of the tendency varying within a wide range.

In our dreams and dream states, we may show many retrogressive tendencies—criminal tendencies, psychasthenic trends, and others. The primitive man, the savage and the barbarian show us our possibilities. The animals below us show us our possibilities. But most of all, the men and women who surround us, normal, abnormal or aberrant, show us our many possibilities, in varying degree, and limited by our special inherent potentialities or trends, our stage in evolution and development, our training, opportunity, example, and the degree and kind of adaptation necessary.

To prove that in varying degree and within certain limitations man has a tendency to one or the other of the aberrations, let us take the tendency toward criminality.

There are all kinds and degrees of criminality. Criminality is a legal and social term. It is not a medical or scientific term. The criminal, as usually regarded, is the antisocial offender who is caught within the clutches of the law and declared guilty. The moral delinquent or the moral criminal or even the legally declared criminal who can keep from being caught, or, if caught, is not found guilty, is not generally regarded as a criminal. But, from the medical and scientific standpoint, the caught criminal and the criminal who is not caught are of the same kind—they are brothers. Furthermore, the difference between moral obliquity and antisocial conduct which society or the judge or the jury

forgive and that which is taken cognizance of and punished as criminal is relative, quantitative. What are crimes in one country or community may not be crimes in another. And as new laws are passed and moral and social standards are raised, the number of possible crimes is increased. It seems to me that every one of us is a potential criminal, and at times has resorted or almost resorted to truly legally criminal actions. The dishonest corner grocer, butcher, pushcart peddler, stock-broker, salesman, card-sharp, faker, financier and the swindler in general, whether they resort to methods of so-called legitimate business or go beyond the confines of what the majority of business men may consider legitimate are none the less criminalistic, if not truly legal, let alone moral criminals. Under certain special determining conditions the criminal tendency may be developed in any of us to an exaggerated degree, under sufficient stress and strain. Under proper conditions the best of us will resort to a greater or less degree of criminality or moral obliquity.

If anyone of us at the present moment suddenly found himself in a world of thieves, robbers, murderers and criminals in general, with no possibility of escape, he would be forced to resort to one of several methods of adaptation. He would adapt by resorting to a certain degree of criminality to preserve himself in the struggle of life, or, refusing to do this, he would starve himself to death, would become dependent and a beggar, or would become a hobo and a vagrant (which usually means a combination of nomadism, dependency or beggary and criminality), would fall a prey to one of the drug habits, would develop one or the other of the types of mental disorder, or would commit suicide. But if, from earliest childhood, we were brought up in such a community with its criminal standards, each one of us would develop a greater or lesser degree of criminality, in addition to any other tendencies which we might have.

Is not this what we should expect? What is the mainspring of criminality? It is but one of the methods of self-acquisition or self-preservation, of self-expression or the gratification of the personal tastes and feelings, frequently as immediately as possible and at any cost to be paid in the future, with little or no regard to one or more of the rest of humanity, and with no re-

gard to the laws of the society and the community in which one lives. When society has decreed that certain modes of expression or self-preservation or self-acquisition or gratification of the personal tastes and feelings are prohibited and attaches a penalty thereto, that form of conduct is then legally labelled criminality. Criminality is a relative condition. The criminal differs only in degree from the rest of us. And all of us are potential or actual criminals of varying degree.

What are the determining factors for the fixation at or regression to criminality? I cannot discuss this here, but the tendency or the particular direction of the tendency shows itself most usually in the young, the mentally defective, the mentally disordered, and in any of us under certain stresses or strains or under special conditions, as a means of temporary or permanent adaptation. The criminal tendency is also frequently present in the insane, in those of weak will power, in the savage and barbarian, in dreams and in other mental states of a lower cultural level. The determining factors need not be further discussed in this place except to mention that the general and special tendencies are determined by our instinctive make-up, our environmental conditions, and our stage in evolution and in development—by our mental level.

This applies not alone to criminality but, in a certain measure, to all the other aberrations.

Let us consider alcoholism, for example. The craving for tea, coffee, cigarettes or other more or less harmful stimulants differs from the craving for alcohol mainly in degree. The individual of a neuropathic or psychopathic constitution or of weak will power, of feeble mind, the primitive man, the insane and others may easily acquire this craving for alcoholic stimulation. But almost any individual under proper life experience and opportunities for habit formation in this direction may acquire this tendency in greater or less degree. That the other drug habits, such as addiction to morphin, opium, cocaine, etc., may also be acquired under certain special accidental but determining conditions, is well known to all physicians who relieve the pains of suffering humanity.

The tendency to lapse toward barbarism and toward one or more of the aberrations, in varying degree and combination, is present in all of us,

especially in the relatively primitive, the relatively infantile, the mentally defective, unstable and disordered.

I wish in this paper to lay down the general principle that man, using this term to include the infant, the child and the adult, primitive or civilized, educated or uneducated, defective or disordered, normal or abnormal, has not only a uniform primitive mental as well as physical make-up, but also a universal polymorphous perverse psychophysical predisposition or possibility, this predisposition varying in degree and depending for its expression on the relative, proportionate, instinctive, inherent constitution and on the life-experiences.

This theory is but an introduction to a broader theory which I should like to discuss but which I shall leave for another occasion. I refer to the theory of psychophysical progression, fixation and regression along evolutionary and developmental lines, with the determining factors for conduct.

Viewing the abnormalities in the light here mentioned, we see that they are not so unusual, so abnormal, so unexplainable as we are wont to believe. We understand them better. We realize the comparative irresponsibility of those who have sidetracked their energies.

The practical importance of these considerations is wide, but I shall not discuss this aspect of the question.

The difference between the normal and the abnormal; between the progressive and retrogressive, the average and the aberrant is more one of method (refined or coarse), and of degree than of kind; and when it is a difference of kind, it is of dominance and of proportionate relationship or proportionate dominance. Basically the goals and objects are the same in all mankind. The method employed,—the means to the end, is different. And it is the means employed to obtain the basic ends which determine our fitness or unfitness, our worth or unworth, our stage in mental evolution and development, our progressive or retrogressive tendencies.

The aberrations are thus but exaggerations of normal tendencies, acquired or possible of acquirement in the course of evolution and of development. They are but the fixations at or regressions to relatively prehuman, primitive, archaic and infantile tendencies which may be

developed in all mankind in a certain degree, under certain special circumstances.

Aberrations are a resort to a means of expression of conduct characteristic of animalism and barbarism or of a lower stage of evolution and development.

Any of us may develop these tendencies under normal or abnormal conditions. But they occur more particularly in the primitive, in the savage and barbarian, in children, in the feeble-minded, the insane, in our dreams, in those of weak will power, in those who are easily suggestible, in the ignorant and superstitious, in those lacking a definite goal in life, without determination and strength of character, self-assertion and individuality, in those lacking a critical, self-sufficient, optimistic philosophy, individuality and independence of spirit and of purpose. Those who are of relatively high cultural level, who are relatively high in the scale of evolution and of development, who have arrived at self-consciousness or self-awareness and practice self-control and self-direction along progressive, idealistic lines, with perfection as the goal—these are least apt to develop or resort to or cultivate the aberrant tendencies natural to the baser elemental trends of man.

Here, then, is shown most clearly the needs and objects of race culture, pedagogy, mental hygiene, character up-building, morality and high ideals in practical life, in our business and social relations.

The mind of prehuman days and of primitive man has run down the ages and it still pervades all of us in our varying degrees of evolution, development and civilization.

THE RELATION OF PSYCHIATRY TO MEDICINE.

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Since the establishment of the first asylum for the insane medical men have claimed, and it has been generally understood by the laity, that insanity was a disorder which belonged to the province of medicine. At the present time no one denies that mental disorders are associated with disorders of the brain and no one in an enlightened, civilized community would think of calling in a theologian to cause the devils to leave

the patient's body. At the same time, however, no one can say that the mass of physicians have kept up the little knowledge of mental disorders they acquired in the schools and only a very few of them have endeavored in any way to increase that knowledge.

As with the other branches of medicine, that relating to the diseases of the mind has grown slowly and has passed through periods of superstition and varying religious beliefs and for centuries its advance has been hampered on account of the persistence of these beliefs. During the middle ages and well up into modern times little was done to care in any way for those who were unfortunate enough to show peculiarities in thought or in actions. It was not until the 18th century that the first lunacy act was passed in England, although before that time the insane had been segregated to a certain extent.

The study of mental disorders did not keep up with surgery and internal medicine during the 19th century although very good work was done in the early part. Gall's work calling attention to the fact that the brain was a specialized organ and that it did not work as a whole, thus beginning the study of cerebral localization, the work of Bayle in differentiating general paralysis, the adoption of more humane methods of care for the insane by Pinel, Chiarugi and Tuke, all took place before 1830. From then, until the study of the nervous system received a fresh impetus by the discovery of the silver stains, little was done in the way of scientific study. The majority of works during this period were devoted to the medico-legal aspect of insanity, to a philosophical discussion of terms or of classification or to the administrative questions which occupied the minds of asylum superintendents.

Since about 1890, however, the study of mental diseases as definite physical ailments has advanced steadily and our knowledge of the cause, course and termination of the various disorders has increased greatly. In America and the greater part of Germany and France the adoption of Kraepelin's classification stopped some of the debate on that subject and allowed more time to be devoted to the study of symptomatology, etiology, pathology and treatment. While the advance along these lines has been slow, it has been steady.

The general medical profession, however, has not kept up with this gradual advance in knowledge in mental disorders and for this there are several reasons. Since primitive times an insane person has been considered as one accursed and consequently one to be avoided. The patient was secluded and his infirmity excused in every way. This is due in great part, also, to the general tendency on the part of the public, and physicians, to consider some family taint as responsible for the trouble and also to the so-called stigma which the patient is supposed to have received when he is summoned before a court and jury and adjudged insane. The legal processes have done a great deal towards causing the public to avoid an insane person as it avoids a condemned criminal.

Gradually, however, the system of voluntary commitments and psychiatric clinics are removing much of the cause for this manner of thinking and the people are beginning to realize that insanity is not a single disease or entity but that mental disorders are varied and that mental symptoms may occur in many so-called physical diseases.

Strictly speaking, the fever deliria belong to the great class of mental disorders which are of toxic origin but are transitory in nature. Fever deliria are not uncommon and are accepted by the general medical man as the results of the general toxemia. When, however, they are prolonged or when they occur subsequent to the fever, as in certain post-typhoid or puerperal psychoses, they are considered rather as definite insanity and the medical man is at a loss to account for them or to treat them.

Many of these psychoses might have been avoided if they had been recognized early—*i. e.*, if the mental symptoms had been correctly interpreted. The toxemia is a condition which the physician can sometimes alleviate even if he cannot entirely avoid some of its effects. A case of this sort clearly shows that mental symptoms are part of the physical disorders which it is the duty of the physician to study and to be able to interpret. The physical basis is clear, the symptomatology, while it is not always clear, is fairly definite, and the treatment is purely physical. No one would consider seriously sending such a case to a theologian in order to have the devils,

created by the diseased brain cells, driven out of the body by incantations.

Practically all the psychoses which are associated with organic brain disease are only secondarily mental disorders. Arteriosclerosis is responsible for many of the cases of mental disorder occurring in the aged. This is associated frequently, but not always, with a peripheral arteriosclerosis with its attendant bodily symptoms. Headache is a frequent and troublesome symptom, nephritis is common, and there is a general wasting of the tissues of the body. After a paralytic attack there is either aphasia or paralytic symptoms. The pre-paralytic symptoms are interesting but are not generally known nor appreciated. They consist of attacks of vertigo, of sleeplessness, and even pure mental symptoms may occur. Savage has reported a patient who for some months complained of sleeplessness and neuralgic pains chiefly fixing themselves in the eyeballs. The patient became irritable and changed his servants frequently; he became emotional and his memory failed. After some weeks hallucinations of hearing developed and he, on several occasions, got up at night, believing that a bell had rung. These auditory hallucinations became very annoying and the patient was very troublesome in protesting against them. Later hallucinations of smell developed and he almost developed ideas of persecution, thinking that the smells were made with the purpose of annoying him. After several months he had a severe apoplectic attack and died following the convulsions.

Savage explains the symptoms on the basis of poor nutrition of the brain. "There was probably some atheroma about the vessels at the base which had impaired the circulation through the brain and thereby impeded nutrition; and as a result the hallucinations had occurred one by one. Each of them might be looked upon in the light of a pain to the sense. The patient was thus affected by a simple pain in the eyes, by bell-ringing, clanging and rubbing noises in the ears, by a sensation of smoke and fusty smells, as affecting the nose—all painful sense-impressions comparable one with another."

The senile cases show simply the atrophy associated with old age. The atrophy of the cerebral convolutions is comparable with the loss

of tissue in the skin, the gradual breaking down of all the tissues of the body.

General paralysis is essentially a physical disease. The mental symptoms are secondary to the organic changes in the brain and throughout the body. The cause of the trouble is an exogenous one, one brought in from without and causing changes in the brain or spinal cord due to some unknown lack of resistance in these structures. Physical signs of the trouble are seen very early, probably before mental symptoms appear. This is, however, difficult to determine owing to the fact that attention is usually attracted to the patient by the mental abnormalities. The physical signs are always present and indicate a diffuse lesion of the central nervous system.

In the manic-depressive psychoses the physical accompaniments are not so easily discoverable. In excited states there is a loss of weight and increase in temperature, but this can be well attributed to the motor unrest. In the depressed states the furred tongue, the general lack of desire for food, the constipation, are physical signs which are almost always present. The exhilaration, the feeling of well being, the sensory hyperesthesia of a manic would indicate some stimulation of the nervous system just as the slowness, the physical depression of a depressed patient would indicate the opposite action. Lugaro in his *Problems of Psychiatry* explains this depression and exhilaration on the theory of a diffuse chemical action on the brain. He says:

"It is only natural that the functions for which a more complex co-operation of units is necessary, must react to the effects of a general depressing action more than other simpler ones; therefore the highest functions are the first to become weak. The processes which are determined directly by sensorial stimuli are therefore more advantageously situated in comparison with others produced by internal stimulation through associative paths. This constitutes another reason why the perception of objects may be less disturbed than the association of ideas, and especially the elaboration of complex processes of reasoning. But perception itself feels the damaging effects of slowing and simplification of associative processes; weakening of sensorial attention and apperception properly so-called occurs; the external impressions no longer undergo any process of selection, any reinforcement or any inhibition on the part of the associative centers, and consequently they are received passively without being impressed on the memory or without exciting any interest. Therefore from

the general depressing action there result weakening of association, of reasoning, of elaboration of motives, of will power, of the capacity for grasping, retaining and elaborating impressions, and of taking an interest in external affairs."

A diffuse increase of excitability, in a moderate degree, may apparently be an element favorable to function, but when prolonged there must be some damaging result to the organism.

Recently the mental disorders associated with disturbances of the various glands of the body have attracted some attention. It has been recognized for years that absence of the thyroid or non-function of this organ produces a condition of physical and mental weakness which is quite characteristic. When the gland functionates properly or when fresh or dried thyroid is given by mouth the symptoms disappear and in cases which begin in infancy the arrest of development may be overcome.

The secretion of the suprarenal glands has a remarkable effect upon the blood pressure by causing a contraction of the blood-vessels. Repeated injections of this secretion causes lesions of the blood-vessels and eventually causes arteriosclerosis. Since arteriosclerosis is a common cause of mental disturbances in the aged, the conditions influencing the suprarenal secretion are of great interest to psychiatrists as well as to the general medical man.

Since puberty and the menopause are periods in which mental diseases are especially liable to begin, the sexual glands have received a great amount of study. Both the period of beginning of sexual life and that of the end are accompanied by mental diseases, frequently of a chronic type, each peculiar to its period. Just what the effect of the sexual glands is in the production of these disorders or whether there is only a secondary action induced in other glands by the onset or cessation of functional activity or, indeed, whether there is any relation to the psychoses is yet an open question. The lesions of the hypophysis and pineal body may be accompanied by various mental symptoms which may easily mislead the clinician.

Our knowledge of the correlation of the various glands, the nature and function of their secretions and the disorders produced by their disfunction is as yet little known and will require careful study and much experimentation to determine.

The problems of psychiatry are those of medicine. The anatomy and pathology of the nervous system must be developed. Nervous pathology is as yet only in its infancy and new methods of investigation are being developed as in other branches of this field. The study of social conditions, the conditions predisposing to mental disease is the same as that relating to the study of the bodily disorders. Finally the determination of the causes of disease are the same in both fields. Just as we do not know why the kidney or lung is involved in certain individuals and not in others under apparently the same conditions, so are we ignorant why the brain is diseased in one patient who suffers from syphilis and the liver in another. These questions will require much study, but few believe they will not eventually be solved. .

The lack of definite knowledge of the anatomy and pathology of the central nervous system and the difficulty of acquiring what is known concerning its complicated structure has repelled students, especially when there was apparently so little to be gained by such study. On the mental side the generally accepted belief that a person once attacked with a mental disorder was incurable and the thought that mental disorders occurred only in insanity has prevented many men from giving the subject the study they should. The increased popularity of psychotherapy and the demand of the public that the physician be one who can treat the mild mental disorders will gradually force a more general study of these cases. The spread of teaching centers, a realization on the part of the physician of the importance of knowing how to interpret and correlate mental symptoms and a knowledge of the part played in his every day practice by his unconscious psychotherapy must lead to a study of medical psychology and in that way to a knowledge of the as yet to him little known field of mental disorders.

BILATERAL PERIPHERAL FACIAL PALSY.

(Report of case.)

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The occurrence of bilateral facial paralysis, whether of central or peripheral origin, is of

sufficient rarity to warrant a due consideration of the subject whenever an opportunity for the study of a case is given. A unilateral facial paralysis is by no means an uncommon condition and results from a lesion involving some point of the facial nervous mechanism between the cortical origin of its cells in the lower third of the motor area of the brain to the ultimate distribution of the facial fibres in the periphery of the human economy. In the central type, where only the lower quadrant of the face is involved, the lesion is usually due to tumor formation, hemorrhage, degenerative conditions, syphilitic manifestations, etc., whereas any of these factors may also be instrumental in producing a paralysis of the peripheral type, but usually a history of trauma, middle ear disease, exposure to cold, toxic and infectious conditions, alcoholism, etc., will be obtained.

Bilateral facial palsies, however, are much more rare than are unilateral phenomena and may be caused by any of the factors above mentioned implicating both sides of the facial mechanism. Sometimes they are the result of a peripheral nerve involvement such as may accompany a general multiple neuritis due to toxic substances, such as lead, alcohol, etc. That one may encounter a true Bell's palsy which simultaneously, or almost simultaneously, affects the two sides is also possible, but the rarity of localized lesions involving only the seventh pair of cranial nerves seems evident from the frugal statements, bearing on the subject, found in recognized neurological works and literature. That lesions simultaneously involving some portion of the peripheral distribution of the facial nerves do occur is evident from the following case report.

Case Report.—An adult male, aged 34 years, native of Iowa, white, single, singing evangelist, consulted the writer January 7, 1914, for bilateral facial paralysis. The onset of the paralysis had been sudden and the duration had extended over a period of some seven months.

Family History.—On the paternal side, nothing of a direct bearing on the case could be elicited from the history. His maternal grandfather, however, at the age of 50 years, sustained a unilateral facial paralysis (Bell's type) and the patient's mother, at 65 years of age, suffered from a similar condition for a period of some three months. No definite cause could be ascertained for the onset of the paralysis in either case, but recoveries were made in both instances.

Personal History.—Patient as a rule had always enjoyed good health, and had never had any serious illness or affliction until the onset of present trouble. Had measles at 16 years of age, without sequelae, one attack of "grippe" eleven years ago, and another attack about four years ago, from which good recoveries were made. Has had three attacks of what he termed "rheumatism" in which the muscles about one shoulder were involved. Each attack lasted about a day, but there were no inflammatory changes, joint involvement or other untoward phenomena. For the past ten or twelve years has been more or less constipated. Does not use tea, coffee, narcotics or alcohol.

Present Illness.—May 24, 1913, while engaged in church work in Wisconsin, he was taken with an attack of the "grippe." He stated that he felt quite ill, fever arose above 104° F., had several chills, headache, and in a few hours had general aches and pains. On the 3rd day the temperature reached normal, headache and general aches subsided and although he felt weak, he returned to his work and conducted a musical rehearsal. On the evening of the 4th day he became quite heated following the physical exertion of conducting a large chorus choir. The weather was warm and humid, and he occupied a seat near a window which was lowered from the top, exposing the back of his head and neck to a draught.

Two or three days later while at the breakfast table he noticed that his cheeks felt rather strange to the touch, and that they had a tendency to droop. Food, which he says tasted normal, collected between the cheeks and the teeth, and necessitated the cheeks being pushed inward in order to clear away the particles. On examining his face in the mirror, he found that both sides were completely and absolutely paralyzed. There was total inability to wrinkle the forehead, elevate the eyebrows, close the eyes, dilate the nostrils, move the ears, or to move any of the muscles of expression. He then recalled that one or two evenings before the onset of the paralysis that he had suffered from pains in the region of the angles of the jaws and that gradually the pains had radiated backward behind the ears. Following the paralysis, the pain became exceedingly severe at times, so much so that a hypodermic injection was given by the attending physician to alleviate the suffering. Paroxysmal pains radiated over the scalp posteriorly and gradually became more or less localized in the median line of the neck a little below the external occipital protuberance. He does not recall having any tinnitus, pain in the ears, nor increased or decreased sensitiveness to low or high pitched sounds. No herpes developed about the ears. He was confined at irregular intervals to his bed during the week following the onset of the paralysis, but was obliged to remain quiet for a period of some three weeks following, owing to weakness.

There was no return of motion to any of the affected muscles until ten weeks following the paralysis, when a very slight elevation of the outer angle of the

right eyebrow could be accomplished. Two weeks later there was a little return of power to some of the oral muscles, so that the corners of the mouth could be retracted very slightly. Very gradually there was a little return of power to the facial muscles, but the first marked return of motion in the occipito-frontalis was not until between five and six months following the paralytic onset and was then noticed on the right side only. For a long time the salivary flow was greatly diminished, but of late this condition has improved. The sense of taste was never lost, but apparently there must have been some diminution, for the patient was obliged to season his food with far greater quantities of salt than he formerly was accustomed to do.

Apparently the treatment instituted consisted largely of anodynes, measures to relieve the local congestion, and nerve tonics. During the following September, the patient began using, of his own accord, the faradic current and the statement was made that at times it seemed to make some of the muscles contract. Galvanism was never used.

Examination.—Inspection of the face, when no voluntary effort at contraction of the facial muscles is made, does not reveal any special change or defect. There is an absence of any transverse lines or wrinkles across the forehead and the naso-labial lines are considerably erased, yet apparently equally so. However, the moment that voluntary effort is made to move the muscles, the bilateral palsied condition of the face at once becomes markedly apparent. The paralysis is more noticeable on the left side, there being a trifle more ability to elevate the outer angle of the right eyebrow, and on marked effort the right corner of the mouth can be retracted more than is possible on the left side. The movements, however, are greatly limited, considering the range of normal muscular action.

The eyes can be opened and closed at will, but any attempt to close them tightly is met with ill success. All efforts at talking or laughing brings out the inequality between the palsied sides, and attempts to whistle, purse the lips, wrinkle the forehead, expose the teeth etc., are unavailing. Speech is not interfered with as far as linguals are concerned, but there is a very noticeable defect in the enunciation of words and letters in which labial sounds play an important part. There is hardly a perceptible movement of the lips during the act of talking.

The tongue protrudes in the median line, is covered equally with a whitish fur and its lateral margins are somewhat fissured. Sensation is preserved, but various tests with acid, sweet, bitter and salty materials indicate a possible diminution of the sense of taste, particularly in the anterior two-thirds of the organ. The sense of smell is preserved, vision and range of ocular movements are normal, ptosis, diplopia, nystagmus, hemianopsia and abnormal pupillary phenomena, are absent. The masseter groups are firm and contract equally, and no disturbance of sensation in the distribution of the trigeminals could be

elicited. Hearing is retained and about equally so, and no abnormal findings indicative of the involvement of the ninth, tenth, eleventh or twelfth pairs of cranial nerves can be found. The uvula hangs in the median line, and the soft palate contracts equally when "ah" is sounded. Station and gait are normal and the deep reflexes of the extremities are all preserved.

As may well be expected in a case in which improvement has been gradually taking place, the electrical changes are not typical of a complete peripheral nerve degeneration. The response to faradism and galvanism are about equal on the left side while on the right side faradism produces a little more pronounced contracture than does galvanism when the motor points are stimulated.

That the case is one in which the peripheral branches of the seventh pair of cranial nerves were simultaneously involved needs, I feel, no special comment before this society. That the process extended upward in the Fallopian canals as high as the points where the chordæ tympani branches are given off is evident from the diminished taste sensation and salivary secretion. The absence of hyperacousis or painful sensitiveness to musical notes of low pitch, as well as no evidence of having had pain or a herpetic eruption involving the auricle and external auditory canals, shows that the process did not extend to the nerve supplying the stapedius, or to the geniculate ganglion. However, the etiological factor or factors that may have been responsible for the bringing about of the bilateral facial paralysis is not only a question of considerable interest but perhaps of some speculation as well. That the too sudden cooling off in a draught following the marked physical exertion incident to conducting a large chorus would be of itself, in the absence of other possible causes, a goodly and sufficient reason for believing such a factor to be the direct etiology. This becomes all the more apparent when we realize that in a large number of cases (73 per cent according to Oppenheim) in hitherto healthy individuals this condition has been known to follow as a direct consequence of a chill, draught, washing the head, sleeping with open windows, etc. But the question as to the possibility of an infectious or toxic origin due to an influenza infection is not to be wholly ignored. Paralysis of the facial nerve has been known to follow such conditions as diphtheria, and mumps, and as pointed out by Oppenheim

"a facial paralysis and an otitis may be produced simultaneously by the same cause, chill, infective disease (influenza, typhoid, etc.)" It is by no means difficult to understand the *modus operandi* in those cases in which parotitis is present, or for that matter where an otitis exists. That there is direct involvement, in such instances, of the facial nerve at some place along its course in the bony canal or after its exit from the same by an inflammatory process or resultant edema is, I am sure, perfectly obvious. In this case, however, if an influenzal infection played any role as an exciting agent, it would appear to be in the absence of any associated otitic involvement. That the paralysis may have resulted from a combination of an infectious process and chilling is, it is needless to state, well within the realm of possibilities. However, the occurrence of a facial palsy of the peripheral type in members of three generations of direct descendants, may be worthy of more than a passing glance. Philip believes that a congenital narrowing of the stylomastoid foramen in certain persons predisposes them to a compression of the nerve upon any slight congestion of its trunk. Such a theory is not only in harmony with facts incident to the case under consideration, but may also give a clew as to why one attack of facial palsy predisposes to another, and in a certain per cent of cases (7 per cent according to Starr) there is a recurrence of the disease.

CONCLUSIONS.

From the foregoing statements, the writer feels that the following conclusions may be justified:

1. Bilateral facial paralysis is much more rare than is the unilateral type.
2. While exposure to cold, draughts, localized congestive conditions, infectious and toxic processes, etc., seem to be largely responsible as direct agents in the production of the peripheral type of facial paralysis, the relationship between the nerve trunk and its bony canal (Fallopian aqueduct) may not be altogether a negligible factor.
3. Congenital narrowing or stenosis of the Fallopian aqueduct may be more instrumental as a true basic causal factor in the production of peripheral facial palsy than is commonly believed.

4. Hereditary predisposition to peripheral facial paralysis may be present in some individuals.

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DISCUSSION.

DR. JULIUS GRINKER: The doctor's paper is very interesting, especially in view of the fact that bilateral peripheral facial palsy is rather uncommon; so uncommon is it that about ten years ago I saw a patient who had facial palsy from which she made a slow recovery and upon her return five months later with a facial palsy upon the opposite side, I immediately came to the conclusion that hers was not a Bell's palsy. Upon close examination we found that there was syphilis as the etiology. She made a recovery under mercury and iodine. We know that syphilis is apt to cause facial palsy upon one side and some time later upon the opposite side; and also apt to cause bilateral peripheral palsy. A case I recently saw of bilateral palsy that occurred simultaneously on both sides, I could not help but diagnose as that of bilateral facial paralysis. The lesion was undoubtedly in the nuclei and not in the peripheral nerve. Dr. Throckmorton's report is interesting from the point of rarity of the bilateral facial palsy.

DR. ALBERT E. STERNE: I think as we look back over long experience and recall the numerous cases of facial palsy that we have seen, we cannot but be impressed with the fact that by far the larger per cent. are cases which were incident to exposure of some sort. My own experience favors the thought expressed by Dr. Throckmorton, viz., that there is in all probability a congenital narrowing of the stylo-mastoid foramen which predisposes the nerve to undue pressure from any slight cause. I recall very distinctly an acute case which occurred under my own observation of double facial palsy in a perfectly healthy young boy of 15 years, whose father was a sufferer from tabes, and later developed tabes. This was before the Wassermann test. The boy had been on a train and had exposed one side of his face to an open window. He noticed that this side of the face was chilled and when he got to Minneapolis both sides were palsied. I believe that it would be impossible to attribute the incident of double facial paralysis to anything but exposure.

Two other cases I recall of sisters. One sister sleeping near an open window acquired facial palsy; she changed places with her sister and the sister moved to the side of the open window and she acquired facial palsy. There was an anatomic characteristic which made it highly likely that they should be predisposed to an effect of that kind. Just as in Dr. Throckmorton's case, the grandfather and the mother of these individuals may have had a similar narrowing of the stylo-mastoid-foramen which predisposes them to similar effects.

THE DIAGNOSIS OF INSANITY.

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CHICAGO.

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These remarks are not intended for the specialist in psychiatry, but for the general practitioner. Though often the first to see incipient mental trouble, when recognition might have saved much inconvenience, he is frequently the last one to admit that his patient is insane. In consequence, many a case of true melancholia, hypochondriasis, or even general paresis, is treated as neurasthenia, hysteria, or mere nervousness, and is permitted to remain at large when treatment in a closed institution has become imperative. It is my opinion that the diagnosis of insanity should present no difficulties in the majority of cases, provided the physician takes pains to master some of the essentials of psychiatry. The subject of this paper being diagnosis, I must necessarily omit other aspects of insanity, especially classification and treatment.

Definition of Insanity. It is as difficult to define insanity as it is to determine what constitutes sanity. Out of the many definitions published, I prefer the following one for its simplicity: "Insanity is a prolonged departure from the individual's normal standard of thinking, feeling and acting."

The last three psychological terms of this short definition are in need of still further amplification.

1. *Thinking* may be assumed to be made up from:

(a) Sensation—An impression made upon an organ of sense.

(b) Perception—The conscious recognition of the external causes of sensation.

(c) Memory—The retention in the mind of impressions received.

(d) Ideation—The process of grouping percepts together by the aid of memory to form concepts or ideas.

(e) Reasoning—The association of concepts to form judgments, the association of judgments to form new judgments.

2. By *feeling* we understand emotional feeling, the so-called affective moods. An emotion

is an idea accompanied by the feeling of pleasure or displeasure; feeling calls forth desire and desire forms a connecting link between itself and feeling.

3. *Acting or volition* is action prompted by feeling. Such action must be distinguished from action which is devoid of feeling, as the reflexes and voluntary acts which have through frequent repetition become automatic performances.

In insanity either one or all of the mental functions may be disturbed.

Sensation may occasionally be impaired or lost; more important, however, are the departures from normal perception in the form of hallucinations and illusions.

Hallucination may be defined as a false perception in any of the senses without an objective reality. Thus, a patient may see, hear, taste, or smell, though no external stimulus is present to produce these percepts. When hallucinations persist they become a positive sign of insanity.

An *illusion* is a false perception with an objective reality. An instance of illusion is the mistaking of the ticking of a clock for the approach of an army, or the shadows of twilight for ghosts. Both illusions and hallucinations occur in the sane as well as the insane; but while the former can correct their errors, the insane sincerely believe in the reality of their false perceptions.

Ideation, reasoning and judgment may be impaired in the imperfect grouping of percepts into concepts, irregular association of ideas, and erroneous conclusions therefrom (delusions).

A *delusion* is a false belief or judgment caused by disease, a judgment which cannot be accepted by people of the same class, education, race and age of the person who expresses it. From this definition are excluded the beliefs due to faulty education and environment, such as a belief in the existence of witches which is still current among certain primitive peoples.

Memory, the *emotions* and the *will* are more or less unequally impaired in different types of insanity, being constantly referred to in the description of the various psychoses.

To make a *diagnosis* of insanity not only must we ascertain the family and personal history from friends and relatives and from the patient himself, but we are obliged to make a careful examination of the patient's mental status. Though the taking of the history differs in no essential

from the history-taking of other diseases, the mental examination is radically different from that for physical disorders. Insane patients do not usually assist their examiners—believing themselves well, or fearing detention in an asylum. Those who are willing are often unable to co-operate with their physician.

In eliciting information on the family history and of happenings to the patient prior to the development of symptoms, it is imperative to enter into numerous details, as there exists an unwillingness on the part of relatives and friends to voluntarily communicate what to them are family secrets, facts that may stigmatize the family as neurotic or psychotic.

Having so to speak uprooted the family tree, we proceed to carefully scrutinize the patient's personal antecedents. Was he born in normal labor, was his mental and physical development during childhood normal or otherwise? These and other questions are asked and the answers recorded. The entire school life is then analyzed with reference first to the acquisition of knowledge; next, with regard to the patient's habits of thought and his usual reactions to the environment,—was he reserved or communicative, social or asocial? What was his favorite pastime; what were his day-dreams?

Being in possession of these data, obtained from reliable sources, we are in a position to pursue our inquiries with reference to changes in the patient's character. Such changes may be manifest by complete reversal or pathologic accentuation of certain normal traits. For instance, a man who had always been of good habits may through incipient mental disease become a prey to all sorts of excesses; an avowed agnostic may suddenly take to church-going; a man formerly aesthetic may become lewd in speech and action.

After all possible information has been elicited from friends and relatives, the patient himself is engaged in conversation. One may begin by extending the hand and bidding him the time of day. The patient's handshake is often significant of the mental affection; the maniac, melancholiac and the dement, each has a different manner of grasping the examiner's hand. In the case of a refusal to shake hands, the reason is demanded. Something may be learned from the alleged reason. Next, an inquiry is made into the state of his health, considering him as one who is phy-

sically ill and whose digestion, circulation or respiration require medical attention. Many an unwilling patient has by thus becoming accustomed to the physician's presence yielded up valuable data, which he would have refused to disclose had the mental examination preceded the physical.

The *objective examination* differs in no wise from a regular neurologic examination and includes the investigation of reflexes, sensation and motion. During the examination we observe the mimicry, the state of consciousness, whether the patient is somnolent, stuporous or comatose. The facial expression may be that of sadness, grief, anxiety (melancholia), euphoric and exalted (mania), despondent, anxious, helpless (confusional insanity), mask-like, fixed, grimacing (catatonia), proud, conceited (paranoid state), humorous, jovial (alcoholic), dull and listless (dementia). We may discover ocular palsies, facial asymmetries, tremors and other signs indicative of the organic insanities. The attitude may also give some indication of the patient's psychology. In addition the gait may be of the spastic, ataxic, or of the steppage variety, showing organic disease of the nervous system, or it may merely appear peculiar. Depressed patients, for instance, take small steps; their walk is aimless and hesitating, while paranoids and sufferers from delusions of grandeur have the step of self-consciousness. The affected gait marks the catatonic, while the hebephrenic indulges in peculiar mannerisms besides.

Conduct. An individual whose behavior is like that of a normal person, is either sane or in the midst of a lucid interval. There is something suggestive in the conduct of the insane for the various types of mental disorder. For instance, the dement appears to take no interest in his surroundings, the maniac is always busy and easily diverted by mere trifles occurring in his environment, which cause in him ever changing associations of ideas with the most diverse psychomotor activity. The paranoiac, suspicious, reserved, reasoning, threatening and always self-conscious, differs radically in his conduct from the alcoholic dement, for instance, who manifests a degree of cordiality seldom noted in other mental disorders.

State of Consciousness. Observations are made as to whether a patient is wide-awake, somnolent or stuporous, dreamy, preoccupied, or confused.

Orientation. Patient is requested to name the location, time of day, month and year, and his relation to the outer world, his conception of recent events, etc. To bring out the facts of orientation and memory, a set of questions is used, the answers to which are recorded and compared with those given at a subsequent examination.

Psycho-sensory Disturbances. In the diagnosis of mental disease it is essential to determine the presence or absence of illusions, hallucinations, or delusions based on these.

Affective Life. The patient's emotions are next analyzed. Is the prevailing mood that of sadness, indifference or of exaltation, irritability, happiness?

The sum and substance of the foregoing remarks is that *a prolonged departure from the normal mental functioning peculiar to the individual is the most certain sign of insanity.*

Having outlined in a general way the methods whereby we arrive at the conclusion that a certain individual is mentally unbalanced, it becomes necessary to briefly review the essentials of the most important symptom-complexes found in the realm of psychiatry. Of these it will only be possible to take up the syndromes, melancholia, mania, paranoia, and dementia.

1. *Melancholia.* In this symptom-complex the point of departure consists either in pathological depression of the emotions or—what amounts to the same thing—in pathological heightening of the painful moods.

The patient is sad without adequate cause; everything appears gloomy; the love for wife and children has changed into indifference, and life has ceased to have any charms for him. Being certain that this condition will remain permanent, he feels that the fault is all his own, having committed an enormous crime or being guilty of the "unpardonable sin." Unlike the paranoiac, who blames others for his misfortunes, the melancholiac reproaches himself for his troubles and suffers indescribable mental tortures, from which he eventually seeks to escape by the easy road of suicide. So great is the tendency to self-destruction that every case of melancholia of whatever degree or intensity, must be looked on as a potential suicide. Many a valuable life has been blown out because the attendant has failed to take due cognizance of this fact, though everyday experience brings home the sad truth that melan-

choliacs often succeed in their attempts at suicide in the face of the most careful precautionary measures to prevent the same. Orientation is intact in the majority of the cases, while the judgment is usually faulty. Illusions and hallucinations are present in some and absent in other cases. The syndrome of pathological mental depression may occur in several distinct varieties of insanity.

2. *Mania*. In this psychosis there is acceleration of the flow of ideas, accompanied by great excito-motor activity with exaltation of the emotions, the exact antithesis of melancholia. There are all varieties of mania from the mildest type consisting in mere exhilaration of the emotions with a tendency to talkativeness and great activity to the most violent types of delirium terminating in homicide. The patient is constantly active, talks incoherently and is easily diverted by trifles in his vicinity. Ideation and reasoning are at fault, the associations of ideas are loosely joined, being influenced largely by superficial resemblances and mere appearances. Assaults and homicide are the two great dangers.

3. *Paranoia*. The primary element in this psychosis is a disturbance of the laws of association of ideas resulting in deficient judgments. The most characteristic symptom is the presence of systematized delusions. The last may be of the ambitious variety, so-called megalomania, or they may belong to the depressive type, the delusions of persecution. In many instances both types are encountered either simultaneously, or they appear in succession. Many paranoiacs are able to carry on the business of life without arousing any suspicion as to their sanity; some, indeed, have become famous for certain persistent activities, being prompted in their efforts by the delusions which dominate them.

The paranoiac, like the genius, is born not made. Years before the onset of symptoms peculiarities of conduct have been noted; they are strange in manner and dress, shun society because of a feeling they have that they are different from others and even superior to the rest of mankind. When delusions first make their appearance, they are rather indefinite and vague in content; as time goes on, they become more systematized and assume fixed shapes. Paranoiacs usually reason correctly on matters other than their particular delusion; they seldom become asylum patients,

being sufficiently clever to hide their insanity. When they succumb to the intensity of their delusions and are at last detained for reasons of public safety, they generally constitute the aristocracy of the asylum population. Many of these patients, instead of becoming asylum inmates, have founded new religious sects or have initiated great reform movements. They are the typical "cranks," mystics and dreamers, with visions of great truths destined to revolutionize the sciences and arts; many of them spend their lives discovering the perpetuum immobile and constructing air ships that shall reach the neighboring planets. Though thoroughly convinced of the correctness of their views, they seldom find a credulous public to assist them in the realization of their gigantic schemes. What is more likely than to assume the existence of a great conspiracy, the aim of which is to prevent the accomplishment of these projects? Upon the delusions of greatness are therefore erected the delusions of persecution. At this point in the evolution of the disease, while smarting from the evil machinations of their supposed enemies, they plan to revenge themselves upon the conspirators; now they become dangerous to society, and homicide often leads them directly into the insane asylum, when a lunacy commission's verdict might have accomplished the same thing. How little understood this disease is even among the medical profession may be gathered from the fact that it is extremely difficult if not altogether impossible to convince physicians that a paranoiac is really insane. Is it any wonder that juries with the most primitive notions on what constitutes insanity can seldom be induced to send a paranoiac to a state institution?

4. *Dementia*. This term indicates enfeeblement of the mental faculties of a mind that was once normal. It is by the fact that the mind of a dement was normal once that dementia differs from idiocy and imbecility, both of which terms signify that the mind has never developed. Mental enfeeblement, dementia, may be the end result of many forms of insanity, but as a disease entity it is seen first in the variety occurring early in life, so-called dementia praecox; secondly, in that form having syphilis as a cause, paresis; thirdly, in the dementia incident to senility, senile dementia; and fourthly, in the dementia

caused by organic disease of the brain, organic dementia. The recognition of dementia is not difficult. As the term indicates, there is a diminution or loss of one or more faculties of the mind, the judgment, voluntary attention, will and memory. Patients affected with dementia have lost the power to concentrate their attention, suffer from inhibition of their wills, a lack of judgment, and often execute the most grotesque and bizarre movements and gestures. The variety seen in individuals at the age of puberty or early adolescence, *dementia praecox*, appears to be the expression of an early mental bankruptcy, and is analogous to the early local death of a physical organ.

General paresis, parietic dementia, is both a neurologic and a mental affection. It is diagnosed from the numerous neurologic signs and the marked mental deterioration occurring in an individual who has passed through a syphilitic infection. In doubtful cases, the Wassermann test, practically always positive, enables the diagnosis to be made. The deterioration in this disease is steadily progressive and affects the judgment, memory and the esthetic sense; its duration is from two to three years, though instances are recorded in which the disease has lasted eight to ten years.

The mental signs of *senile dementia* are similar to those of parietic dementia, but the substratum is found in the senile arterial changes, causing a gradual obliteration of the most recently acquired and least organized mental acquisitions. The patient usually lives in the past and can see nothing of interest in the present, has no memory and in a general way seems to be returning to the mental condition of childhood.

In conclusion I may state that though many forms of insanity do not exactly fit the descriptions given, yet I believe that most forms of insanity will be found to present a symptomatology similar to some of the types described, and if the essentials of these have been well-digested there should be no difficulty in making a mere diagnosis of insanity regardless of the refinements of classification, which must after all be left to the specialist in psychiatry.

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DISCUSSION.

DR. SOLOMON: I would like to say a few words with respect to the use of the term "insanity." Just

as we no longer speak of epilepsy or apoplexy, but of the epilepsies and apoplexies, so we do not speak of insanity alone but of the insanities. Insanity, however, is purely a social, a legal phrase; it is not a scientific term. Insanity means that degree of the disorder of the mind which makes the individual unable to get along to such a degree that he should be confined to a hospital for the mentally disturbed or, as we refer to it, for the insane. Therefore we have a great variety of mental disorders, which are, from the legal standpoint, on the borderland between sane and the insane. Insanity therefore is not a medical phrase, it is a legal one. Many of the mental disorders are not grouped among the insane for the reason that insanity is a degree of disorder. It is simply an exaggeration of disorder to an extreme so that the individual is unable to hold his own in the community and to such an extent that he should be confined and looked after until he recovers, if he does. Hysteria and neurasthenia are disorders of the mind but we do not group them among the insane for the reason that the disorder is not of such a degree that they are unable to hold their own in the community. If we appreciate then that the term insanity is really an obsolete one, or if we use the term, remember that it is purely a legal phrase and has reference to a class of the mentally disturbed we will have a better conception of the question of the mentally abnormal and the normal. The difference between the psychoneurasthenic and the one who is insane is one of degree absolutely. The psychoneurasthenic is one who has merely hysteria, or one who has psychoneurosis. His disorder is in the sphere of the mind but he is able to hold his own. He is able to look after affairs to a degree which does not permit us to class him among the insane. We must remember, however, that in the so-called psychosis and psychoneurosis, the fundamental question is a question of the mind. The disorder of the mind, insanity, is simply that degree of mental disorder which causes us to feel that the individual cannot get along in the community alone and is irresponsible and should be sent to a hospital where he will be protected and the society about him.

DR. ALBERT E. STERNE: I find myself completely out of touch; so much in disharmony that I cannot refrain from speaking on the subject. I have no doubt that Dr. Grinker's paper finds its place, even in an association of this kind, because it emphasizes certain things that everybody knows. What Dr. Solomon has said is very apt and goes a little bit further, but there again the crux of the situation as it presents itself to us is not met. Gentlemen, the difficulty is not in the recognition of the conditions of so-called insanity which are spoken of in the paper or even by Dr. Solomon. Those cases are recognized. The difficulty that presents itself, as far as I can see it, is that the family and the friends of these individuals who are mentally disturbed, who are in a state of inadaptation to their surroundings, fail to

note the early signs of the trouble. They send them up to commitment when they cannot take care of them any more. The time having passed when they should have received attention. The difficulty is not in the recognitions which bear ordinary earmarks; they are easy for the laymen; the difficulty is in recognizing conditions early enough as states of physical illness which have a certain mental expression which is abnormal. Mind separable from matter is inconceivable and when there is an abnormal mental expression, there is an abnormal physical condition at the base of it every time. Now, when this physical condition reaches a point where anyone can recognize it is too late for the welfare of that individual—it is difficult for even the most expert of us, I mean the whole medical profession, the men who deal with these conditions day in and day out, to satisfy themselves in some instances of the patient's condition. That same difficulty presents itself early in the ordinary case. These individuals are sick; they must be recognized as sick individuals just as we recognize the early recognition of any other kind of disease. We are preaching for the early recognition of this, that and the other thing. We can recognize mental abnormalities just as readily. It is always on a physical basis.

DR. THROCKMORTON: If there is any class of insanity with which the general practitioner comes in contact most, it is usually those of aberration which is due to toxic processes; we know that in delirium we usually have a history of some toxin, whereas, on the other hand, the maniac gives a history in which hereditary influences are present, I should say in 80 per cent. of the cases. We know that in mania there is a tendency to recover, yet there is always that tendency to recurrence.

DR. GRINKER (closing): I am glad my paper, although elementary, elicited some discussion, some controversy. I believe that the members of this association should give each other a little of that mutual admiration which is really due them. They invite the public here; they invite nurses, general practitioners, and they have men and women here to whom they talk Greek. I believe that some of the papers are of the elementary type. I am not speaking of the hour of the early recognition of insanity; that is not my topic at all. Let us recognize those things which everybody should recognize and that is why I brought up the A B C, because some of us are in sore need of it. I, too, have listened to eminent alienists who present clinical cases and yet made wrong diagnoses and wanted me to swallow it—I didn't do it. I think we can do nothing better in addition to coming here than to recognize the earliest types of the mental behavior of the individual towards his environment and also, here and then, tell the people what everybody should know, as well as his own five fingers.

AN EXPERIENCE IN PEDAGOGY AMONG THE CHRONIC INSANE.

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I was assigned as assistant physician to the Jacksonville State Hospital at a time when there was an awakening as to the manner of treating the insane in the care of the State; and soon found I had entered a field of work containing interesting and instructive features, as well as sad ones. It was only with the passage of time, however, that I came to a realization of the necessity of seemingly ignoring the mental defects of the unfortunates under my care, and treating them more as if they were normal.

As I became better acquainted with my patients, I was attracted to one in particular. He was an unusually obstinate patient, resisting every effort to make him follow the general routine of the ward. At night he would refuse to undress, claiming it was a habit of his when he was on the road to sleep in most of his clothes, in order to be able to catch a train quickly at any hour of the night. This made it necessary for the attendant to undress and dress him; then he would refuse to go to meals, and the attendant had to lead him to the table.

At times I was able to draw him into conversation; again he would pay no attention to me, and seemed swayed by some fear. Gradually, however, his confidence was gained, and by taking magazines to him and pointing out interesting articles he was later drawn into discussion of them. This was not an accomplishment of a day; it took weeks and months of patience and coaxing, as he had been an inmate of the hospital for over five years.

He still had his moods of depression, and, much to my surprise I found him one day surrounded by a group of patients who were listening attentively to his reading and explanation of a magazine article. It is problematical at times to amuse insane patients, and as a rule little can be done beyond the weekly dances, services at the chapel, ball games and the holiday entertainments. Therefore, it was not long until the reading circle grew to large proportions.

A noticeable improvement was now observed

in this hitherto morose, obstinate patient, and I felt that if he had more to occupy his time he might further improve, and suggested to him the starting of a school among the other patients in his ward. After some coaxing he agreed to the plan. Through the co-operation of the superintendent a large blackboard, some slates and pencils were secured; and after some scouting around a motley array of readers, grammars, geographies and spellers were collected, and our school was started.

An unusual school this was, composed of insane patients, and taught by a patient; in fact the first school of its kind in the West, I have been told. Very methodically was this school conducted; the bell being rung regularly at eleven in the morning, and the class was dismissed at twelve. The afternoon session was called promptly at two and lasted until three; and the curriculum included arithmetic, grammar, spelling, history and geography, in addition to short readings from standard authors every day.

Comparatively few of these patients had much previous education; but this did not lessen an observer's sense of pity at the sight of grown men going to the blackboard and puzzling over simple sums—sums that a boy of ten would laugh at.

It was marvellous to see how much in earnest the teacher-patient was in this new work. Not satisfied with marking and grading his pupils conscientiously each day, he soon instituted the giving of oral and written examinations at regular intervals.

I was frequently called upon to address the school, and at such times made it a point to praise the work of the pupils and the improvement they were making. For it was the rule of the school that every pupil should be neat; and the attending patients became very eager in their striving for clean hands, carefully combed hair and well-brushed clothing, where there had previously been an utter lack of thought as to general appearance; and the change was indeed surprising. Then, too, it became a common sight to see quite a number of the patients practicing writing exercises and studying lessons between school hours.

As the months passed the monotony of the school work was at times varied by the appear-

ance of outsiders to give a musical and literary program. Then a library was gradually acquired, which was patronized far beyond our expectations; for this ward had previously been hard to interest even in the daily newspaper.

To an outsider this work may seem trivial, and some might even intimate that after the novelty of the school wore off the patients undoubtedly lost interest. This was not the case. A year passed; the school was still in full swing; our teacher-patient was so improved that he was given a parole; there was an air of alertness and interest in the ward; the patients were easier to control; and instead of losing interest, watched the clock impatiently for school time, many taking their places before the sound of the bell.

By this time it was unnecessary for me to take the initiative, for the teacher had gradually taken full charge of the school, and was constantly making suggestions and innovations, one of which was the monthly spell-down which caused great amusement and friendly rivalry. As a teacher he seemed imbued with an insatiable desire to be doing something, and one day asked permission to start a singing class during the hour between supper and bedtime. For a time this hour of song was conducted without the aid of a musical instrument; but so many patients seemed to have a fondness for different keys, regardless of the written music, that the result was rather harrowing, and this branch of education was on the verge of oblivion when the superintendent gave the ward an organ. Then we found that one of our epileptic patients was capable of filling the important post of organist, with the result that we were able to at least drown some of the discord. Later, enough latent talent was found among the patients to form a quartette, and the singing hour gradually became one of the delightful hours of the day. Our chorus might not have passed muster before a group of musical critics, I'll admit, but it served the purpose of giving pleasure and forgetfulness to those participating.

When the singing school was in good working-order, we thought our teacher would be willing to rest on the oars of accomplishment; but he was not. For in a short time he agreed to conduct a religious service in the ward on the Sabbath; and soon a typical Sunday school was under way, our untiring patient filling the triple

position of teacher, superintendent and preacher. The regular Sunday school lesson course was followed, and the scholars of this school were not far behind the normal scholars of a regular Sunday school in memorizing verses of scripture.

As I said previously, this was not accomplished in a few weeks or months; and it was not until the second year that the idea of improving the bodies as well as the minds was taken up. Then a class in physical culture was started, and the patients were put through a regular course of exercises every morning greatly to the benefit of their bodily health. This class was started during the summer months, at a time when most of the patients spend several hours each day on the lawn. So, to combine these beneficial effects with amusement, contests, races, etc., were entered into, much to the interest of those who did not care to take part. This work drew into the class many patients who could not be induced to attend the regular school.

The last, but not least interesting, work undertaken was the organization of a secret society among the student patients. The initiation fee of this society was not money, but the attainment of high marks in school, and only those who reached a certain mark—one given for neatness as well as scholarship—were eligible to membership. By-laws were drawn up; patients were voted on for membership, and a day was set aside for initiation. This initiatory work consisted of blind-folding the applicant, then making him crawl between the legs of a row of patients, and administering a few light blows on the back with a pillow, after which he was given the obligations and made a full-fledged member of the society.

Though this school was held in one ward, the interest was not confined to it; for patients in other parts of the hospital asked to be allowed to attend; and after a time our teacher consented to pay short daily visits to several other wards. Then, too, the school became an object of interest to visitors who came to the institution.

The work was in progress for about four years, and not once during that time did the interest flag. Some may ask if it proved permanently beneficial. I can only say that many of the patients who attended the school showed such improvement that they were allowed to go home; and our teacher-patient was discharged from the

hospital as recovered, and is now earning a good living for his wife and children; and the ward in which the school was held changed from a moderately violent ward to one of the best in the hospital.

Was not the effort worth while?

THE PATHOLOGICAL CHARACTERISTICS OF THE HABITUAL CRIMINAL.

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MICHIGAN CITY, IND.

Ever since Cesare Lombroso published his monumental work "*L' Uomo Delinquente*," the students of sociology and criminology have been waging constant warfare for and against the conclusions and deductions made in this famous volume.

The question as to whether there exists a "criminal type" of man continues still to draw heated controversy.

Criminal anthropology seems to have been constantly misunderstood because there has been a confusion between the "technical value of anthropological data concerning the criminal man and their scientific function in criminal sociology." The real function of criminal anthropology is to determine whether the criminal is normal or abnormal, to learn the nature of his abnormalities and to ascertain whether or not they are of such a nature as to respond to treatment and correction.

The subject matter contained within this paper is the result of the intensive clinical study and daily observation of the habitual criminal. It is not merely the statement of preconceived or prejudiced private opinion or quotations from criminological authors.

In studying the habitual criminal we are confronted with two very definite schools of opinion as to what are the essential factors that produce him. One class of criminologists have definitely charged his psycho-physical construction with being the chief element in his production; that his criminal and anti-social tendencies are the expression of biological caprice; that he is unalterably destined to commit crime no matter what his environmental circumstances may be. In brief, if an individual is criminal, he was born so to be.

The other class of criminologists entertain be-

liefs diametrically opposed to the above; they deny that the criminal is born, that he inherently possesses the qualifications for crime, but claim that he is an outgrowth of the defects of the social fabric, that his existence may be charged to unfavorable economic, political and evolutionary states of the social body. This opinion is briefly stated in the words of Lacassagne, "Society has the criminals it deserves."

After several years association with criminals of all types I have become convinced that the prison populations are composed of deteriorated and defective individuals who fall below the average physical and mental standards. I am also convinced that we do find the stigmata of degeneration among prisoners with greater frequency than in equal numbers of civilians living at liberty. It must be borne in mind, however, that we are not justified in classing an individual as a degenerate merely because he possesses a single physical or mental defect. We can say with certainty if we find many physical and mental anomalies in an individual that he is subnormal and his organization is defective. All degenerates, however, are not criminals for in this class is to be found the insane, the cranks, freaks, sexual perverts, beggars, prostitutes, ill-balanced geniuses, hysterics, imbeciles and idiots.

General Considerations. The following data have been gathered from the study of one hundred recidivists, all of whom have been convicted not less than four times. My investigations have been confined to the clinical study of the problem and the sociological aspects were not touched. The following table will doubtless be of interest.

Number of convictions	697
Number of years served in prison, exclusive of time served in jails and workhouses.....	1,221
Number admitting the use of alcoholic beverages to excess	94
Number professing some form of religion.....	83
Number admitting having had gonorrhea.....	74
*Number admitting having had both gonorrhea and syphilis	65
*Number admitting history of mental defect in immediate family, including insanity, feeble-mindedness, epilepsy and crime	56
Number admitting history of tuberculosis in immediate family	41
Number of prisoners having had tuberculosis at some time	12
*Number of prisoners admitting the use of narcotic drugs, such as morphin and cocain	8
MENTAL STATUS OF 100 RECIDIVISTS ASCERTAINED BY PSYCHIATRIC AND PSYCHOLOGICAL EXAMINATION.	
Insane	12
Feeble-minded	23
Constitutional Inferior	38
Psychopaths	17
Epileptics	10

*The number is greater than admitted.

EDUCATIONAL STATUS OF 100 RECIDIVISTS.		
Common School		18
Less than Common School		75
Illiterate		7

It is easy to see even from the most superficial glance at these figures that these 100 habitual criminals were defective. This is especially noticeable when we stop to think that seventy-five of them did not even reach the eighth grade and that seven were entirely illiterate. Some objection may be offered against this conclusion, but this is easily overcome by the fact that opportunities for education were good in the majority of these cases. The real cause of the lack of education was the inability to assimilate that which was taught them because of mental defect and such physical conditions as poor eyesight, adenoids, defective hearing and a disinclination to study, coupled with a condition of incorrigibility.

At least fifty-six of them bore the burden of some neuropathic taint which bequeathed to them an instability of the nervous system and a sensitized physical economy for the action of degenerative influences.

The majority of the men studied were in a condition of physical insolvency, more or less. Seventy-four admitted having had gonorrhea with the train of symptoms and sequelae that follow this dangerous infection such as gonorrheal rheumatism, strictures, defective vision and in one instance a heart lesion; 65 of these 74 cases of gonorrhea had syphilis in addition, the most dread of all diseases to which human flesh is heir. Twenty-five per cent of all persons in insane hospitals are there due to the direct and remote effects of this disease which forever blights the person that has felt its sting.

Many remedial physical defects were found among prisoners which had directly or indirectly contributed to crime. In the year 1911 I refracted more than 300 pairs of eyes for relief of visual defects. Defective vision may directly lead to truancy and truancy often leads to delinquency. The headaches of eye-strain have led to the excessive use of alcoholic liquors and drugs in the false belief that relief could be obtained.

About 60 per cent of the men suffered from flat feet and a large number had some degree of phimosis.

What was the role of alcoholism in these cases? The part it played was that of a contributing

factor and not the immediate cause of crime. It served merely to intensify the defect already existing; it weakened already enfeebled volitional powers; it was influential in firing misguided, wild and erratic emotions; it distorted previously inefficient, irrational judgments, in fact, it raised to the n'th power all the potential and latent elements for criminality. The same may be said of morphin and other narcotic drugs.

Insane Habitual Criminals. The twelve men classified under this division had for the basis of their crimes some form of insanity. As to whether these men were actively insane at the time of the commission of their criminal acts I cannot say, but it is very reasonable to suppose that their insanities must have existed in a latent form at least. Many times crimes and misdemeanors are but expressions of mental disease and it is a sad commentary on the medical and legal professions that insane individuals are incarcerated in prisons merely because they are suffering with a form of mental disease.

All forms of mental alienation are found among prisoners, but the chief varieties observed among recidivists are dementia praecox, epilepsy, paranoia and paranoid states, manic depressive psychosis and hysteria.

"Wilmanns, in a study of 127 vagabonds, found 66 cases of dementia praecox."

The alternate cycles of good behavior and freedom, crime and imprisonment which I have noticed in habitual criminals somewhat resemble the manic depressive psychosis with its intervals of lucidity, separated by periods of depression and excitement. In the period of remission of the cyclic form of criminality the prisoner is exceedingly well behaved and often takes a very active part in the religious services and societies at the prison, and often this individual is thought to have been reformed and that he will become a model citizen. He is often discharged for this reason alone and he does exceedingly well on his parole for a limited period of time. But shortly the reformers' hopes are dashed to the ground, for a second cycle of criminality develops, new crimes are committed and the individual is returned to the prison from whence he came or is sent to some institution in another state.

No greater proof is needed to substantiate the

claims that the habitual criminal is defective than an examination of the type of prisoners who are found in our hospitals for the criminal insane. Of 107 men I transferred from the Indiana State Prison to the Indiana Hospital for Insane Criminals, 102 were habitual criminals. These men had spent the greater part of their lives in repeated conflicts with the law.

They repeatedly violated the rules and discipline of the prison and it has become so apparent even to the non-professional officers of the institution that men who are continual disturbers of prison order are always held in suspicion as being mentally unbalanced.

Our present deputy warden in a spirit of justice and progress, asks the prison physician to pass on the condition of sanity and responsibilities of those brought before him to be disciplined, and we found that not less than 85 per cent of these men present some condition of mental defect or insanity.

Of the last convictions of one hundred and sixty-nine prisoners in the insane department of the state prison, 28 of them were convicted of murder, 17 assault and battery to murder, 6 of manslaughter, 8 of rape, 7 of assault and battery to rape, 5 of sodomy and 21 of burglary.

It is evident from the foregoing table of crimes that the persons who committed them were of a degenerate nature. The insane criminals are recruited from the ranks of the recidivist and cases of recovery are exceedingly rare because of the fact that their insanities are developed on fertile and degenerative soil.

Prisoner of the insane type.—White male, 54 years of age, sodomist: family history obtained unreliable; has used alcohol to excess since a young man; has had gonorrhea and syphilis. Since 20 years of age he has tramped and hoboed about the country. His wanderlust is the direct reaction to paranoid beliefs; his wanderings were the results of his attempts to escape the charges of electricity by means of which he thought Edison was persecuting him. He avoided large cities because of the presence of many telegraph and telephone wires; he often left places of employment without waiting to collect the wages due him. On one occasion he went to Orange, N. J., to gain vengeance on the inventor for the torture he was enduring at his hands. He assaulted the janitor who prevented his gaining entrance to Mr. Edison's office and for this assault served several months in jail.

This prisoner skilfully hides his delusions of per-

secution and it is only by the most careful psychiatric examination that his delusions can be elicited.

Feeble-minded Habitual Criminals. I classed twenty-five per cent of the habitual criminals that I studied as feeble-minded. In the employment of the term "feeble-minded" I have endeavored to limit its application to the definition formulated by the American Association for the study of the Feeble-minded which is, "All degrees of mental defect due to arrested or imperfect mental development as a result of which the person so affected is incapable of competing on equal terms with his normal fellow, or of managing himself or his affairs with ordinary prudence."

Various estimates have been made by different physicians and psychologists as to the number of feeble-minded persons in penal and reformatory institutions. This number has varied from 20 to 60 per cent and the apparent difference can be easily understood when we consider the various natures of the institutions giving this data and the general broadness or narrowness of the psychopathological examination given.

Dr. Walter E. Fernald has stated:

"At that rate we should have 20,000 such individuals in adult prisons, and 6,000 in juvenile reformatories, making a total of 26,000 defective delinquents in actual custody not to mention those who have never been arrested and the large number who have been discharged or paroled from institutions and are now at large. There are doubtless as many defective delinquents at large as there are in custody."

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The feeble-minded are not in themselves inherently criminal or anti-social. Being easily influenced and unable to control their actions because of their utter defect of perception, reason and judgment, they become the unconscious tools of perverse and anti-social individuals, evil environments and associations. The gross form of feeble-mindedness is easily recognized and its existence is rarely disputed, but the great danger and difficulty lies in the recognition and the proper care for the high-grade feeble-minded persons.

The feeble-minded are subject to attacks of depression and exaltation and their mental equilibrium being very unstable, the baser elements of their natures assert themselves at such times and this is shown in deeds of violence.

Type of feeble-minded criminal.—White male, 21 years old, murderer. Physical examination reveals the presence of general stigmata of degeneration; head is of the doliocephalic type, face asymmetrical, Darwinian tubercle on both ears, palate is high and sharply arched, marked malocclusion of the teeth.

This prisoner freely discusses his crime and he tells without remorse or shame how he killed a fellow prisoner that he might be transferred from the reformatory to the state prison where he would be permitted to use tobacco.

Mental examination shows this prisoner to be a high-grade feeble-minded person. He passed with ease the Simon-Binet measuring scale of intelligence. This fact proves to the author's mind that this test inadequately reveals mental defect, for it fails to show quantitative and qualitative defects of judgment and it does not measure or diagnose the efficiency of an individual's reaction to his environment. A psychiatric test was necessary to determine his condition.

Constitutional habitual criminals. The largest single group of the habitual criminals that I studied may be classified under the term "constitutional inferior." The term is self-explanatory. While the individual of this group is not feeble-minded in the strict sense of the term, he is below par both mentally and physically. He is unable to stand the strain imposed upon him by the ordinary conventions of society; without assistance he cannot occupy the place that he should in the social order. Indecision, inability, vacillation and dependence are his chief characteristics; he readily takes to every vice that comes across his path, indulges in prostitution, he falls an easy victim to the drink and drug habit, his mental operations are slow, reason and judgment are defective. The constitutional inferiors possess an unsatisfied craving for continual and unusual excitement, and in their impetuous endeavors to secure it they live on the borderline of insanity and criminality over which they are swept back and forth by the force of tempting circumstances in which they often find themselves; in them the call of the wanderlust is particularly strong; they travel from place to place and the railroad employes and detectives in particular can testify to this fact. With the coming of warm weather hundreds of them are traversing the continent in search of contentment which leads them in a never ending chase. Many of them are convicted of petit crimes and a very common one

for them to commit is the breaking of box cars to secure food and small plunder.

The treatment to be attempted in this class of cases is the removal of these physical conditions brought out by dissipation and venereal disease, removal from vicious environment and associates, reeducation and tactful direction of their thoughts and activities into channels of usefulness. If it were possible to transform their restlessness and unproductive activity, and if employment could be secured that would in a measure afford them continued novelty and excitement, their rehabilitation might be expected if it were not for their neuropathic organization.

Prisoner of the constitutional inferior type.—White male, age 42 years, reached third grade in school; was truant and incorrigible and says he didn't care to learn; wanted a job to make money. Has drunk liquor since 18 years of age; has been convicted three times of larceny and once for assault and battery with intent to rob; has been paroled twice on last sentence and has failed to make good.

He has had gonorrhea and syphilis; ptosis of right eyelid.

This prisoner says society has forced him to be a criminal and that his present conviction was due to the fact that he was "out of luck." His brother is also a criminal.

The psychopathic habitual criminals. The class designated as psychopaths form 22 per cent of the total number studied. These are a group of individuals who may be said to be semi-insane or semi-responsible. The following is a description of the psychopath by Dr. Parker. "In the psychiatric sense he is neither flesh nor fowl, neither sane nor insane, and he is a dangerous individual at every stage. He is bright, responsive, reactive and in varying degree pretty adaptable for certain periods. He is anti-social, either for sudden periods or persistently."

There are individuals who display many eccentricities of character and of conduct, but which seem to be no departure from the individual's usual manner of feeling, thinking and acting, nor are these traits sufficient as to warrant calling the individuals insane who possess them. Yet these characteristics in question hinder the efficient adjustment of the individual to his environment. It is noted that insanity is a very frequent development in these cases. They have been graphically described by Régis as follows:

"Their lives are one long contradiction between the apparent wealth of means and poverty of results.

Within this class are found the moral imbeciles." "A group of persons of unsound mental temperament who are born with an entire absence of the moral sense, destitute even of the possibility of moral feeling; they are as truly insensible to the moral relations of life, as deficient in this regard as a person who is color-blind is to certain colors, or as one without the ear for music is to the finest harmonies of sound. Although there is usually combined with the absence of moral sensibility more or less weakness of mind, it does happen in some instances that there is a remarkably acute intellect of the cunning type."

Sexual perverts of the most disgusting type were found among the psychopaths and no small number of them are met with in all penal institutions and they indeed furnish very difficult problems to be solved in those prisons where it is necessary for lack of room to put more than one prisoner in a cell.

Whether these anomalies of the sexual instinct are always congenital or not, has not been settled and it does seem that inverse and perverse sexual habits can be acquired early in life by the association with vicious and depraved individuals. They are, at any rate, an exceedingly dangerous and demoralizing class which should be permanently isolated to prevent their mingling with others. Murder has been the outcome of sadistic practices.

Psychopathic criminal sexual pervert.—White male, 26 years of age, last crime committed, uxoricide. Prisoner's paternal grandfather insane; father has been an inmate of a hospital for the insane for the last 22 years. Prisoner reached 8th grade in school; has used alcohol to excess since 18 years of age. Practiced masturbation since 10 years of age. Had sexual intercourse for first time at 14 years of age with a girl 4 years his senior, who was menstruating at the time.

After his first sexual congress he was always sexually aroused at the sight of blood—he often watched his mother kill chickens in order to be sexually stimulated. He was married at 19 years. He found that intercourse at the menstrual period gave him more pleasure sexually than at any other time. Prisoner tells the story of his crime in a frank and unhesitating manner.

One evening he had a quarrel with his wife accusing her of infidelity. In the course of the quarrel he threw her to the ground and in doing so he stumbled against an iron pipe which he used as a weapon to crush her skull. He informed the examiner in a glib and easy manner that each time he struck his wife he felt an erection taking place and for the satisfaction of his sexual passion he continued to strike her until she was dead. He then secured a razor and severed the head from the body. This act and the sight of blood gratified him intensely and he desired

very much to have intercourse with the dead body, but circumstances were such that he hesitated to commit the act of necrophili, lest he be caught, which exposure he would have regarded disgraceful. But he did not regard the murder in the same light. He left the body and returned to it three times under the influence of his sadistic passions, ejaculating at the third visit. His sexual hyperesthesia being relieved, he then gave himself up to the police.

Physical examination reveals the presence of anatomical stigmata, face shows weakness of character, features irregular in outline, ears of Morel type, palate is highly and sharply arched, malocclusion of teeth and slight internal strabismus of left eye.

Prisoner answers questions in a coherent and relevant manner. His general intelligence is in harmony with his common school education. He has no hallucinations nor delusions. He has no remorse for his deed, but is externally sorry that his liberty is taken from him. He has wishfulfilling dreams of a sexual nature. Sense of moral and legal responsibility absolutely lacking. He says he will commit suicide when tired of prison life.

Eight of the psychopathic type were drug fiends, six of whom used both cocaine and morphin, the prolonged use of which dulls the perceptions, enfeebles reason and judgment, diminishes the critical sense of the moral qualities of the mind and so makes and cultivates a tendency to crime. The crimes incident to the use of these drugs are all forms of larceny, blackmail, forgery, embezzlement and petty offenses of all sorts.

The epileptic habitual criminals. Ten per cent of the recidivists that I studied, belong to this class. The great neurosis epilepsy is a fruitful source of crime and many dangerous acts are committed by the epileptic. He is, as a rule, conceited and arrogant; he prefers idleness to employment; he seems to possess a morbid propensity for lying. True gratitude to him is an unknown quality and the general signs of mental instability and weakness are the predominant characteristics of his psyche. The unfortunate epileptics are most erratic in their judgment and therefore lacking in the same degree in self-control; they are excessively emotional and given to spells of musing and religiosity.

The violent acts of the epileptic are frequently performed during the automatic states preceding or following a convulsion. Such acts seem to be committed in a perfectly conscious and coherent manner, but in reality consciousness is blotted out and when the individual regains his

normal status there is usually no memory for any of the events that occurred during these periods. After the paroxysm we find that the patient is confused, dazed and weak, which condition is usually followed by a deep sleep.

The condition known as psychical epilepsy is one in which the paroxysm is replaced by a nervous storm which is not accompanied by the usual signs of epilepsy. "Psychic epileptics may commit all manner of crimes, thefts, arson, assaults, homicides; they are not infrequently pyromaniacs entirely without reason or impelled by the flimsiest motives."

"This type of the epileptic neurosis must always be considered when some apparently normal person commits an outrageous act without any assignable cause.

"Murder by an epileptic should be looked on as being as much a symptom of his disease as is larceny by a general paretic."

"The medico-legal aspects of this type of epilepsy depend, so far as responsibility is concerned, upon our ability to determine the existence of the automatic state at a given moment. This may be difficult to do beyond reasonable doubt, though if we can prove that the person is a sufferer from epilepsy at the time, or ever had it in any form, we can always create a reasonable belief that the patient may have acted while in a seizure, without any intent whatever, and under conditions that should free him from responsibility.

The evidence of the presence of epilepsy needs to be carefully studied in order to arrive at a just conclusion in medico-legal cases. If it can be proved beyond a reasonable doubt that the individual has epilepsy, the question of responsibility is not difficult after that. We may not be able, it is true, to say positively that he was under the influence of a seizure at the moment an overt act was committed, while on the other hand, we are equally unable to prove that a seizure was not present. Psychic convulsions defy all ordinary methods of detection. They can readily be noted, however, by one trained in the observance of their expression."

Criminal of the epileptic type. Prisoner white male, thief, 35 years of age; father epileptic; one brother died of epilepsy at the age of 11; one maternal aunt insane; prisoner has had epileptic seizures at irregular intervals since 5 years of age; has used alcohol to excess since 18 years old; has had gonorrhea and syphilis; was two years a patient at the Kankakee Hospital for the Insane. He presents the stigmata of degeneration. He forced his wife to be a public prostitute. It has been shown that his crimes

have been more or less a result of epilepsy and its attendant dementia.

CONCLUSION.

It is evident after the study of these 100 habitual criminals that crime and its manner of classification has received far more attention than has the criminal himself. We have treated the symptoms rather than the cause, the physical and mental abnormalities which were the efficient factors of their criminality were disregarded. It is also apparent that more than 1,200 years of confinement has failed to reform them. Indeed the majority of them are far more anti-social because of their incarceration.

If the number that I have studied for the preparation of this paper can be taken to be representative of the habitual criminals in general, and I believe they can, I feel warranted in offering the following suggestions:

First, the recidivist is a mental defective. Habitual criminality is a reaction of a pathologically organized individual, whose anomalous defects or acquired diseases prohibit his efficient adjustment to his environment and make him extremely susceptible to the vicious influences of a complex social state.

Second, because of the fact just stated, reformation in the majority of cases of recidivists is a high-sounding illusion of misguided philanthropy.

Third, since the recidivist is a defective he should receive treatment rather than punishment and every remedial mental and physical defect should be relieved.

Fourth, as soon as a recidivist has been proven to be a mental defective by repeated psychological and psychiatric examinations, he should be retained in custody until he is so recovered that he is no longer a menace to society.

Our penal institutions are maintained at tremendous cost and I do not think the public should be compelled to build separate institutions for the care of the defective delinquent, but our prisons should be remodeled so as to have departments for the care and treatment of the mentally deficient criminals and these departments should be in charge of alienists.

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DISCUSSION.

DR. SOLOMON: I agree with Dr. Bowers in everything he has stated except in the conclusion, in which he is absolutely wrong. In the first place, I feel that he has made a mistake in the title of the paper in that he has headed it "The Pathological Characteristics of the Habitual Criminal" instead of "The Pathological Characteristics of a Certain Number of Habitual Criminals Which He Has Examined"—100 I believe. The next thing is therefore to consider the material that he has. The institution in which Dr. Bowers is physician is an institution where I believe we receive the worst type of criminals who have committed offense after offense; a great proportion are individuals who have been sent there for 20 years or for life. These, therefore, are the extremes. Even with this material, however, we must remember that we have thousands and thousands of habitual criminals repeating various sorts of crime, from petty larceny upward who have never been convicted and who are not in institutions. Therefore, the material which Dr. Bowers had was, in the first place, the habitual criminal who happened to get in his institution; the others were not considered. I feel that from an examination of 100 individuals we have not a right to draw a conclusion which would apply to criminality—which has such a wide spread that we look upon it as normal.

The second point is with reference to the attitude of Dr. Bowers. I want to be extremely frank, as I know something of the previous history of Dr. Bowers. Before he was physician in charge he received a training in the hospital for the insane. I do not want to make an absolute statement, but I think when he comes to examine the criminal he is looking at them very much from a psychopathic standpoint and perhaps that has something to do with his examinations, as they have shown some form of abnormality in the psychic sphere.

The next point is as to the classification of Dr. Bowers. It is a question whether the individual whom he classes constitutionally inferior would be the classification that some of the gentlemen in the audience or I would have made. I feel confident that he would be apt to put many individuals as those constitutionally inferior whom I would consider quite within the normal.

The next point, granted even that the findings of Dr. Bowers are absolutely true: Dr. Bowers has presented findings, which he has discovered in 100 individuals, but he does not go into the etiology except in the conclusions. There he jumps from 100 criminals whom he examined to certain generalities which I feel he is not entitled to. From examining 100 individuals he arrives at conclusions which he applies to all criminals all over the world. Dr. Healy, in examining the pedigree of a great number of criminals, 900 or so, especially of juveniles, was not able to prove heredity in a single instance; therefore, if Dr. Bowers' conclusions were true, it would

not show a thing with the habitual criminal in general, or with reference to the criminal whether he is habitual or not.

The next point is: What is criminality? What is an habitual criminal? I think that those who have made a study of children will readily agree with me that most children have a tendency towards slight degrees of criminality, of theft, etc. I think it will also be agreed that an individual brought up in an environment of degeneracy is apt to form certain habits along criminal or other lines. It is mainly a question of the environment of life which drifts. Criminality is simply an exaggeration of the tendency toward self-preservation, and one of the means of self-preservation is self-acquisition. In the criminal, not the extreme, it may be due, absolutely due, to the environment, and many of the criminals after reform have become responsible individuals.

I feel it is an extremely important subject if we are going to label every criminal habitual criminals. Because a man has a habit he is no more inherently criminal than the individual who has not committed any crime.

BRAIN HEREDITY AND BRAIN HYGIENE.

J. T. SEARCY,

TUSCALOOSA, ALABAMA.

The nervous system may be said to be composed of afferent and efferent nerve lines and nerve centers. Within the spheres of action to which they relate the centers, each with its grade of intelligence, adjusts its executive action to its received action for the purpose of control or equilibration. All of this action is *sentient*; which property, or faculty, in the cerebrum reaches the grade of *consciousness*. Its tripartite qualifications, in its posterior, middle and anterior tracts, reach the grade of learning, reasoning and executing.

The nerve structures of the body lie in two departments; the functions of one relate to the outside of the man, to his environment, and the functions of the other to the control of internal organs. These two departments, though separate and distinct, are yet "sympathetic" the one with the other. The convoluted brain of man is the exceedingly large and complex center of the psychic department, whose functions relate to the external things and activities that come within its cognizance; the internal, or sub-psychic department, has control and adjustment of internal organs and activities.

The fact that the functions of the immensely

complex cerebrum relate to the outside of the man, renders its habits and capabilities of action open to outside observation. It takes an expert to make an opinion of the condition of an internal organ, while, because their functions relate to the outside, everybody claims to be an expert in judging the habits and capabilities of the brains of others. This is a universal habit and we are constantly exchanging opinions with each other about the brain habits and abilities of our acquaintances.

We know that there are differences in the psychic habits and abilities of others and we are interested in looking for them. When these differences are customary, usual, natural, expected, we regard them as exhibitions that come from normal brains; when however they are not customary, unusual, unnatural, unexpected, we regard them as exhibitions that come from abnormal brains.

Exhibitions of abnormal psychic habits and capabilities, of whatever grade and kind, we of late call psychoses; when, however, a psychosis reaches such a grade of abnormality as to bring the person within the cognizance and jurisdiction of a court, we call it insanity. Such definitions clear up a heretofore very ambiguous field.

A court takes cognizance of a psychosis to determine its grade for a number of purposes. For instance, whether it is, in one case, sufficiently grave to render the person irresponsible, if he has committed a crime; or whether, in another case, the psychosis is sufficiently grave to render the person so objectionable, that he should not be allowed to go at large but should be restrained and cared for in a hospital; in another case, whether the psychosis is sufficiently grave to necessitate that a support should be provided for the person, or a guardian be appointed to manage his property; in another case, whether the person's will, contract, or conveyance of property should be invalidated because of the grade of his psychosis; and in another case whether the person should be allowed to marry, testify, or vote. For such purposes the courts take cognizance and jurisdiction of psychosed persons; the grade of the psychosis is always the question, which is a matter of opinion; in many instances there can be differences of opinion as to the grade of the aberrancy. The court's opinion prevails.

The original inherited grade of psychic habits and abilities is a most important factor in the make-up of the person. The brain is a matter of heredity as much as any other organ. Its heredity is more a matter of importance than that of any other organ. The success and safety of the individual depends very much upon the inherited qualifications of his brain. Relating as it does to the environment, it increases and loses in abilities with the degree of ancestral exercise and effort that have been made in acquiring its accomplishments in the vicissitudes of the succeeding generations. The brain is man's specialty; with it he has peopled and encompassed the whole world and claims it all for himself; with its efficiency he has eliminated every other competitor, until his only rivals now are his fellow-men. Men civilize to a degree in accordance with their brain abilities and individuals, families and races succeed and excel in accordance with their psychic habits and abilities.

Little or nothing is done in a sociologic way in human society to increase and improve the brains of the people by the judicious mating of parents. Many of the social methods of human civilized society are directly derogatory to the improvement of this human specialty. The sex appetite and the appetency of the sexes, the one for the other, alone in the very large majority of cases determine the mating of men and women, without any reference to posterity.

The practice of having no selective reference to prosterity in human sex mating is having its greater and greater effect in the deterioration of the psychic abilities of the people. In our latter day civilization an equal valuation is put upon all human lives alike; which of itself enables the unfit, the misfit, the incompetent, and inefficient, to reach adult life and multiply themselves. The sympathies and charities of the civilized also enable the least competent to live and to multiply. It is true that the same evolutionary principles apply in human civilized society that prevail everywhere, that the less psychically competent are most eliminated, but we thwart natural elimination to such an extent that the deleterious results are becoming more and more apparent. The natural processes are not allowed to prevail. For this reason there are more deficient and more defective types of here-

ditary psychoses found everywhere, from the milder types, apparent wherever sociologic questions are studied, to the graver grades which people the penal and the beneficiary institutions. No selective attention, such as we use in the improvement of our domestic animals in their specialties, is paid to the improvement of man's specialty. Human heredity goes at loose ends, not even with instruction on the subject.

Eugenics is probably the most difficult of all sociologic questions to direct properly; a vast deal of instruction is necessary before proper principles or rules can be formulated or enforced. The less efficient propagate themselves without any reference to posterity and multiply in our society at an increasing rate, because every opportunity is granted them to do so, and they are aided, beyond their own abilities, to live and reach the multiplying age. To unsex the inmates of the penal institutions and of the insane hospitals, as is suggested, would hardly touch the border of the question; they come down to these levels in society from all directions, by reason of the processes of general psychic deterioration going on. The subject of human brain improvement and human brain deterioration, through the generations, is not studied; hereditary psychic deterioration is actually aided in our civilization; natural elimination of the less and least competent is prevented. Brain heredity is a live and a most important subject.

It is quite apparent in civilized society that brain deficiencies and defects are more numerous than those of any other organ. Something in civilized society is impairing the brains of the people, hereditarily and individually, more than any other organ.

We have in medicine a number of much used drugs, which are prescribed because they have peculiar chemic effect upon the sentient lines and tracts of the psychic system. Some of these are chloroform, ether, nitrous oxide, chloral, coal tar products, the solutions and the alkaloids of opium, cocain from coca leaves, alcohol from fermenting material, nicotine from tobacco, and caffeine from tea, coffee, and cola nuts.

All these drugs have their specific effects upon the most delicate, functioning, protoplasm of the sentient structures, possibly to harden it chemically and prevent their sensating. Coming into the posterior, consciously sentient, tracts

of the brain are innumerable nerve lines bearing sensation, or producing a general sense of comfort or discomfort in these most delicate structures, sentient and sensitive, because their protoplasm is the most delicate in the body.

Any one of these drugs taken into the circulation reaches all the structures of the body, but first affects these most delicate and sensitive nerve fibres and cells of the psychic department. The chemic effect of these drugs is to obtund or entirely suspend the abilities of these structures to feel or sensate. The ether, in a surprisingly small dose in the blood, affects these most delicate structures, and soon suspends the functions of the whole psychic center and department. There is no ability in the brain in the anesthetic stage of the administration to receive, adjust or execute. The whole cortex is suspended, with its afferent and efferent lines. If the administration is held at that point, only enough given to suspend the psychic department and not enough to suspend the lower grade less delicate centers of the sub-psychic department, the anesthesia is successful. If, however, enough is given to suspend the centers that control the heart, lungs, etc., the patient dies. The separateness of the two departments, one relating to the outside and the other to the inside, is well illustrated in surgical anesthesia.

These drugs vary, of course, in their chemic affinities for the different structures, and differ in the degrees of their toxicity. In the first stage of their action upon the sentient structures, the "subjective sense" of the person, in the use of each one of them, is comforting and pleasurable. He likes it. For this reason, the less toxic of them are often taken as luxuries. This is particularly the case with caffeine, nicotine, and alcohol. They have gotten entirely out of scientific hands and are used generally as luxuries in civilized society. As a more capable civilized people we canvass the whole world for our support and pleasure. We found in Asia and Africa people using tea, coffee, and cola nuts for the caffeine they contain; but for the caffeine they would not be taken at all. We found men in North America using tobacco for the nicotine it contains; in South America, using coca leaves for the cocain; and we have learned to ferment and distill the alcoholics in many shapes. Opium is imported in much larger quantities than are

used in medicine. Some of the coal tar products are being taken popularly. Indeed, we are using as luxuries many of these drugs in our society, while other races originally had but one, and we are reaping the effects.

The delicate sensating lines and brain tracts of the psychic department are rendered by the repeated use of any one of these drugs, hypersensitive, sore, and tender, so that the person, on the withdrawal of the drug, has a general sense of discomfort and feels bad in a way that he knows he can relieve by taking more. This chemically produced discomfort and the knowledge of the fact that he can relieve it by taking more of the drug, is what constitutes the "habit." Any person may know he has a "drug habit" when he has that discomfort after the withdrawal of the drug. The mildest ones produce it.

The so general use in our society of caffeine by the women, children, and men, of nicotine by men principally, from 80 to 90 per cent of them, and of alcohol solutions of different strengths, is having the general effect of producing in individuals and in their posterity conditions of psychasthenic hyperesthesia; which the use of such drugs tends to increase in the habitues and in their children until society is becoming permeated with the lineal psychic results of such habits. The consumption of such drugs is constantly increased by their very use; a psychasthenic hyperesthesia, growing from these habits everywhere, increases the demand for the drugs. One has only to look about him and see such psychic conditions alarmingly prevalent and growing.

To recapitulate: Most brain qualifications are due to heredity; far the greater number are acquired in the ancestry. Brain heredity, dependent upon the same principles of descent that obtain in all biology when considered in reference to the importance of the organ in man, becomes one of the most important of all psychologic and sociologic questions. More attention ought to be paid to it in civilized society, where many natural processes for brain improvement are thwarted. We save and multiply the inefficient.

Brain hygiene is, of course, the most important of all hygiene. Much can be said about it. Many other causes of deterioration of its abili-

ties could be mentioned for which there is no space in this paper, but I draw attention to the extensive and popular use of anodyne drugs in our civilized country as the most unhygienic of all customs.

Both these causes of brain deterioration prevail most extensively in civilized countries. We save the incompetent and they multiply themselves, and throughout society we impair brains by our almost universal drug habits.

CHRONIC ALCOHOLISM.

CHARLES F. READ, M. D.

Assistant Superintendent, Chicago State Hospital.

DUNNING, ILL.

On May 21 of this year the patient, R. L. T., was admitted to the Chicago State Hospital. He is a man 38 years old, married, but with no children, a stage carpenter by occupation. His father was a moderate drinker but lived to be 72. Patient had practically no schooling, playing truant most of the time, but learned to read and write shortly before marriage. He began to drink at 18 and was first really drunk at 21. Married at 21 and abstained for some time during the following two years. Later he began work as a teamster hauling whiskey and drinking freely, but losing no time on this account. He then began work as a stage carpenter and during the last ten years has been a hard drinker, often intoxicated. In 1912 he suffered delirium tremens and went to the Washingtonian Home, following which he abstained for two or three months, but after this was drunk once or twice a week. March, 1913, he again had delirium tremens and was sent to the Bridewell on account of an attempt at suicide. Following this experience he again abstained for two months, but in November began drinking hard again. In May of this year he again suffered an attack of apprehensive hallucinosis and cut his throat. He was taken to the Bridewell, remained there about two weeks and was sent to the Detention Hospital whence he was committed to the state hospital.

When received he seemed to be clear and gave no evidence of a psychosis. His case was classified as alcoholic hallucinosis, but this diagnosis was a retrospective one. In the state hospital the man has been perfectly sane. He shows no

physical findings save sluggish abdominal reflexes, marked dermographia and hyperesthetic calf muscles (often has cramping). He is over weight, but his blood pressure is only 140 and his heart, arteries, liver and kidneys are not in bad condition.

However, there is no doubt but that he is a chronic alcoholic with acquired susceptibility that renders him liable at any time upon alcoholic indulgence to become a menace to himself and his fellows. Fortunately he never seems to harbor the ordinary alcoholic ideas of infidelity and is more accustomed to defensive than offensive lines of action. Hence thus far his hand has been turned against himself alone.

There is nothing particularly extraordinary in his case. Our police magistrates hear somewhat similar stories every day. The interest for the writer lies in the fact that now, less than a month after the patient's admission, we have been compelled to parole him. He will abstain for a few months, perhaps beyond the period of his parole, and then history will repeat itself. He will drink more and more until he begins to see and hear things again and then some fine day he will finish the job he has already undertaken or he may, in his toxic indignation, turn first upon his wife and kill her before he puts an end to himself. He is sane now and our state hospitals are over-crowded, so back the man must go to his old job, his old associates and his old habit.

Jas. McK. was returned to the Chicago State Hospital just the other day after his arrest following a two weeks' debauch subsequent to his escape while enjoying parole of the grounds. Prior to this admission to the Institution he had twice been at Kankakee during the last year and a half, and between times in the County Hospital on account of drinking. McK.'s father did not drink nor his mother nor any of his brothers or sisters. He has had a good grammar school education and a year in business college. For two years he earned fifteen dollars per week in an office. At 18 he began to drink quite hard; was now and then drunk on Saturday and Sunday, but worked quite steadily until 25 years of age, when he procured a political job where the work was light and the time and opportunities for drink abundant. At thirty, after five years in various city offices, the patient went to the Bridewell for four days and at about this time (patient was not exact in dates) he jumped out of a window of the Washingtonian Home and broke a leg,

Note.—True to prediction, the patient was returned a month later in a mildly hallucinated condition.

for which he was sent to the County Hospital for several weeks. In all he has been in the Washingtonian Home about ten times and for three years has done scarcely any regular work; two years ago he again spent a term in the Bridewell. At times he has worked as extra man at the stockyards, earning five dollars one day and drinking it up the next. While drinking he is said to become very noisy and excited and even pugnacious.

Physically the man is apparently in good condition. According to the ordinary mental tests he is as good as he ever was. He does clerical work daily in one of the Institution offices and is neat in personal appearance. He has gone the customary rounds, Bridewell, Washingtonian Home, County Hospital and Insane Hospital. In this last institution he does not really belong, but what shall be done with him? Evidently he can't be trusted to take care of himself, so at present the State Hospital must play nursemaid to a man who in the last fifteen to eighteen years has lost the habit of independent sustained endeavor and in its place has developed a mode of reaction outwardly expressed in alcoholic intoxication.

Incidentally this patient well illustrates the disadvantages of a hospital located across the street from three or four saloons and beer parks. The State law fixes the nearest approach of a saloon to a soldiers' and sailors' home at 2,000 feet and to the State University at four miles, but thus far it has failed to protect the institutions in which hundreds of alcoholics are treated yearly.

This man still passes an excellent mental examination and his physical condition is good. A life insurance company not knowing his history would probably accept him as a good risk. One of the best known of these companies is said to have lost 1,520 risks by alcoholic deaths in two years, which at an average policy of \$1,000 means a loss of \$1,520,000 to the other policy holders who must pay premiums based upon statistics including alcoholic deaths. In place of earning from \$75.00 to \$100.00 per month for the last ten years, as he might well have done, this man has, while working, barely supported himself and much of the time has been a burden upon his family and the state.

By a member of Kraepelin's clinic at Munich, 42 cases of chronic alcoholism were investigated with a view to establishing the exact cost of their incapacity and the results summarized as follows:

Loss due to loss of employment	\$15,000.00 per yr.
Loss due to sickness	5,000.00 per yr.
Loss due to the imprisonment	5,000.00 per yr.
of 33	
In all over	\$1,400.00 for each of the 42 on the debit side the ledger as against the many thousands which should have resulted from their productive labors.

Such men as these are recognized by the laity as well as by the profession to be in a class apart

from the normal and yet not insane, save when suffering from an overdose of alcohol as evidenced in pathological intoxication, delirium tremens, hallucinosis, etc. They are chronic alcoholics or inebriates.

And what do we mean by inebriety? Broadly speaking, an incapacitation due *secondarily* to chronic poisoning, but primarily due to the individual's having drifted into slipshod ways of meeting the exigencies of life.

Individual conduct at any one moment is resultant upon the choice of one out of many possible reactions. It is generally accepted that there are but two primary trends of human interest, procreation and self-preservation, out of which instincts rise countless modifications denoting by their character the degree to which the individual's reactions have separated themselves from their primeval simplicity. Dominant modes of reaction we loosely term motives or ideals. Thus we have individuals expressing in their lives the desire to be of service, to gain knowledge, wealth, etc., and upon the other hand we find tendencies to evade issues and to slip through life without effort.

The alcoholic's appeal to drink is without doubt a primitive form of reaction closely allied to that of a sensitive child who runs constantly to its mother to be comforted and reassured. The alcoholic longs to be patted on the back and told that he is really a fine fellow, badly treated by an unappreciative world. Rather than meet the demands of life squarely he slips to one side and comes up smiling, with the aid of alcohol. When he becomes sober the inner censor casts more or less scorn upon such evasions of the issue and this criticism is quieted only by the application of more alcohol. Alcohol by its toxic action enables the weak man to justify himself and even to glory in his wisdom and strength. It is a mighty lever raising him, in his own estimation, to a plane above that of most of his fellows. It is not difficult to think of the inebriate as childish, but it is quite the custom to look upon this as a result rather than as a cause. This error results from a failure to separate the two components of a vicious circle, the one a low-grade mental reaction, the result of personal make-up, the other the expression of this in a physical reaction—alcoholism—which reaction in

turn produces changes in the body that result in an increased facility for low grade adaptation.

By this it is not meant that all those who become inebriate are necessarily low grade in the scale of mental development. Mentality as commonly understood has not a great deal to do with the matter for, as every one knows, the possessors of some of the brightest minds have gradulty of selecting modes of reaction which will be of the greatest service to the individual in the long run. This selective ability does not depend upon so-called intellectuality. Successful adaptation often occurs in the plodding dullard and as often quite fails in the educated man of apparently high ideals.

The life histories of a great majority of chronic alcoholics show that they began to drink when boys of from fifteen to twenty and that they began to go to pieces around thirty; but occasionally we come across men who have done well up to thirty or over and then have disintegrated following some period of unusual stress. In these the personal mode of adaptation has been sufficient for the requirements of a well-ordered existence but not highly enough developed to take care of the organism when an extraordinary difficulty presents itself. Roughly we may compare it to the ability of a man who does well enough in a shooting gallery, but fails when called upon to defend his life against the attacks of a savage beast in the open field.

Given a man with a primary tendency toward the evasion of issues, and you have a man who must perforce wrap himself in a tissue of dreams. Some do this with the strange artifices of dementia praecox, manic depressive insanity and paranoia, some with a cloistered life of one kind or another, some with invention, or dreamy, ill applied learning, some with opium, cocaine, etc., and finally there are those who drink in order to widen their horizons, to remove worry and sharpen their wits, to increase their bulk among their fellows, to make of themselves for the time being what they cannot bring themselves to accomplish by wearisome endeavor in a sober world. The tendency or drift toward chronic alcoholism

is the result of a primarily defective adaptation to life as the individual must live it.

The ultimate results of this mode of reaction have been quite definitely determined by a multitude of observers. They are in a lesser degree the effects noticeable in acute poisoning by this same agent.

Physically: there are tremors of the face, tongue, fingers; slight degrees of muscular incoordination, evidenced in quick jerky speech and movements; a tendency toward peripheral neuritis, evidenced in cramping of calf muscles and tendoneies of the nerve trunks; a tendency to adiposity, to cirrhosis of the kidneys and liver, and to arterial changes.

Mentally: there is a loss of the keen edge of the perceptions. A former alcoholic, who has now been abstinent for two years, in speaking to the writer of the change noted in himself, singled out this especial experience, remarking that he now seemed to "see more wherever he looked," to observe everything more clearly than before he stopped drinking. Narrowing of the perceptive horizons naturally implies a corresponding loss of normal associative activity which in turn permits of a greater prodominance of the drink complex and calls for more alcohol to take the place of the normal stimuli thus shut off.

Impressibility is lessened and memory becomes tricky. Because of a failure to call into play the greatest possible number of associative tracts when selective action is demanded, the individual shows weakened judgment. Reactions occur which are not so well adapted as formerly to carry the organism along upon its previous plane and it tends to sag to lower and lower levels. This in the main explains the source of the inebriate's degradation. Delusions of infidelity, hallucinosis, delirium tremens and the remarkable syndrome given by Korsakow all may occur in the course of the disorder and all are merely incidental to more acute poisoning either directly alcoholic in nature or indirectly due to the by-products of disordered metabolism. The main components of all these so-called psychoses are present to a lesser degree in the chronic alcoholic while he is still apparently sane. He is, as it were, always in a state of saturation, ready to precipitate at any moment upon the addition of the proper reagent.

The relation of this individual to society is a sociological problem that can only be touched upon in the present essay. The tale may be read in the municipal courts any day, or at the House of Correction, or in the corner saloon or the tenement, in the homes for the feeble-minded and in the hospital for the insane. For a long time we have listened with indifference to its telling, but without a doubt we are now upon the verge of a tremendous realization of its meaning, not for the individual alone but for the future of the race.

Dr. Alfred Gordon, formerly of Jefferson Medical college, in an intensive study of the effects of alcohol upon the descendants of 117 families, found that in the first generation of 90 families of alcoholics 200 of the offspring were mentally affected and 180 of these were epileptics. Of these children 78 began to use alcohol when from 8 to 16 years of age.

In the second generation of the descendants of 20 alcoholics, 78 were deficient and this deficiency was of a lower type than that found in the defectives of the first generation. There were more idiots and imbeciles with pronounced vicious tendencies. Sex perversions, vagabondage, debauchery and precocious prostitution occurred and quite a large number were admitted to hospitals for the insane in attacks of delirium and confusion.

The study of the effects on the third generation were confined to the descendants of seven known alcoholic families; 21 of these were imbecilic with or without epilepsy. (*Journal of Inebriety*, vol. 33, No. 3.)

Kraepelin quotes Chiarra as finding alcohol in the ovary and semen an hour after ingestion and Ceni as noting that chronic alcoholic hens lay one-third as many eggs as healthy hens and that among their progeny but 43 per cent were healthy as against 77.6 per cent of those of alcohol-free hens.

Conception in intoxicated states produces faults in the offspring. Holitscher reports three known cases of this nature; one child was a hydrocephalic imbecile, another rickety and scrofulous and suffered from disturbance of speech and gait while the third died at one and a half years in convulsions. Sullivan reports the death rate of the infants of abstemious mothers up to the third year as 23.9 per cent as

opposed to a death rate of 55.8 per cent of those of alcoholic mothers. (Kraepelin; 8th edition.)

Last year the legislature of Illinois voted to found a colony for epileptics. In a number of states these are already well established institutions. A home for these unfortunates is necessary, but why did we not likewise ten years ago establish a hospital for those wounded and maimed in the insane celebration of the Fourth of July? Instead of this we instituted the Sane Fourth and almost completely did away in a decade with the need of any medical care whatever for our celebrants.

Four epileptics out of every ten stand in the somber shadow of an alcoholic parent. Alcohol contributes to the admission of from ten to twenty per cent of the inmates of our insane hospitals. Three-fourths of all the crime and misery in the world is due in part to this same cause. To these statements there is naturally but one reply—a reply so simple that it very probably will require another century for its entire acceptance. Alcohol as a drink must go. It is an economic absurdity.

Meanwhile we must in self-protection, if not in charity, give colony care to the inebriate and save not only the parent, but the child as well. There are many so-called cures for drunkenness and no doubt all are successful at times. A small proportion of drinkers will stop when suddenly brought to a realization of their delinquency, whether this be by a so-called cure, by conversion, by accident or in any other of a dozen ways. These are the individuals already pointed out as possessing a fair ability for adjustment up to a certain point beyond which they fail and go down until re-established by a sudden inner upheaval which restores them to their former level. The other ninety-five per cent, however, cannot emerge from their bondage in any such easy manner. For them there is no cure on earth save that of a period of enforced abstinence with discipline, work, and religion when possible. Remember that we have to deal with an organism primarily prone to react in a manner not calculated to bring about for itself the best results and in addition to this original handicap, there is added the disintegrative effect of alcohol upon a nervous system evolved for the especial purpose of enabling man to react

to stimuli with precision, dispatch and far-seeing purpose.

Few inebriates actually crave liquor after they have been separated from it for a week. In two weeks' time they have no more physical desire for it than an abstainer. A patient recently told me two days after returning to the hospital from a two weeks' carouse, that he would not mind if he knew there was no more alcohol in the world and I have no doubt of his sincerity in this statement. No, the trouble lies not in the call of the body, but in the cry of the psyche for the effects of alcohol. The inebriate misses this foster mother who speaks kind words to him when things go badly, who entertains him and causes him to forget there is a real world with sharp corners on it. He is a big baby and nothing more, provided his liver and kidneys are in working order. Take his bottle away from him and he cries until his attention is distracted and he learns to do without it.

Upon the other hand—and herein lies great hope—the alcoholic is a marvel in his re-integrative ability. The sot, the bum of the street under discipline often becomes a good worker and a decent fellow after a wonderfully short period of abstinence; and with even greater facility he reverts to his former level when returned to his old friends and environments. In discipline and re-education lies the secret of his cure. And discipline and re-education cannot be accomplished in an insane hospital or the work-house. The logical, practical manner of dealing with this man is to commit him by law to an especial colony where he may be weaned from his foster-mother, taught habits of industry, and built over into an efficient mechanism.

The various laws that have been framed concerning the commitment of inebriates quite generally fix the maximum term at from two to three years, but permit removal upon parole at the discretion of the management. The method of commitment may be quite similar to that for the insane. In order to commit it is necessary only to establish the fact that the individual is incapable of properly conducting his own affairs or is dangerous to himself or others by reason of habitual, periodical, or frequent and constant drunkenness, and that there is reasonable ground to believe that he will profit by colony care. Voluntary commitment is probably expedient, as

with the insane. The patients ought not to be of bad character apart from their habits of inebriety. Return by warrant of arrest must be possible at any time while the patient is absent upon parole or escape.

The Massachusetts colony at Foxboro has been in existence some twelve years. Its holdings invoiced, according to the latest report I could obtain, over \$400,000.00, including a little over one hundred acres of land. The per capita cost of five dollars a week at this institution appears high as judged by the standard of our western hospitals, but relieved of the problem of union labor (in a locality far from any large city), it would seem that such a colony should, with an acre of land per capita, become in a few years almost self-supporting.

Of nearly one thousand ex-patients of the Foxboro institution whose condition was investigated a few years ago, twenty-two per cent could not be traced, twenty per cent had remained abstinent and twenty-one per cent were improved and at work.

At Knoxville, the Iowa State Colony of Inebriates established in 1906, over forty-two per cent of the graduates are reported as showing satisfactory results.

Now let us in conclusion indulge for a moment in some figures, professedly not above reproach and still good enough to give pause for thought. Illinois is now committed to the construction of a new insane hospital at a probable ultimate cost of one and a half millions for fifteen hundred patients, or one thousand dollars a bed. An inebriate colony can be established at the same cost and run at one-half to two-thirds the annual per capita. Let us say we invest a half million in a colony for five hundred patients. The stay of each patient let us say, averages four months—Foxboro figures—and we care for fifteen hundred a year. Let us assume that each year forty per cent or six hundred men are improved by their stay and that forty per cent of this six hundred, or two hundred and forty, are married men, or those who will marry later on, men at the height of their productivity as wage-earners and begetters of offspring. Let us be ultra conservative and allow each of the two hundred forty, only one child after he leaves the colony and we have two hundred forty children every year bred with better chances for health of body

and mind. This is a great asset, better health, less of imbecility, epilepsy, prostitution, drunkenness, sickness, and crime among the children of the state, to say nothing of what we do for the six hundred men themselves in re-making them into productive citizens. There is no doubt but that this is fit work for the state, a simple, sane and economical means of conserving the Commonwealth.

DISCUSSION.

Dr. Cohn (of Kankakee): Either I did not hear, but I wish to bring out one or two points the doctor did not pick out in his paper, viz., the so-called chronic alcoholic in his various sprees is not exhibiting a form of another psychosis when he indulges in alcohol to excess. After a young man has become what we might term a chronic alcoholic, we realize that we are dealing with *præcox* in whom personality has changed and in whom the excessive use of alcohol is simply an expression of the deteriorating psychosis from which he is suffering. I believe we ought to be careful in differentiating these conditions. The prognosis and treatment would be altogether a different one. Now there is a difference of opinion of what constitutes chronic alcoholism, whether it simply constitutes chronic or long continued use of alcohol, or whether it is a chronic mental state which shows deterioration.

Dr. Theo. A. Diller: I believe that often alcoholism is an expression of underlying psychosis, dementia *præcox*, or mania depressive state. But there are many other forms of alcoholism. One of the most remarkable things to me about alcoholism is this: How long some men may drink alcohol without disturbing their mental intellect. I have in mind now a lawyer who died recently at the age of 72, a brilliant lawyer, a man who made a large income, who was a periodical drinker for many years—40 years I should say. Now, Mr. Chairman, I should like to go into theoretical consideration that Dr. Read has given us. I was to speak first of the practical suggestion that he made as regards state hospitals for inebriates. There is one in Massachusetts, one in Iowa. Minnesota started one a few years ago, and about eight years ago I myself brought the matter before the Pennsylvania State Medical Society, and a commission was appointed at that time to persuade the state, if possible, to create a state hospital for inebriates. We had at that time on the statute books a law which provided that a person who was an inebriate might be so adjudged by the judge of the court, after a hearing, and committed, in the language of the court, to the "proper hospital or asylum for a period not exceeding one year." Under that act persons were committed, viz., to the State Hospital for the Insane. Now, this was an anomaly; this was a great wrong. The superintendent for the State Hospital for the Insane did not

want inebriates; on the other hand, they said it upset the discipline in the hospital. The machinery of the hospital was not made for patients of this class. They were a distinct class; they were to all intents and purposes sane men. On the other hand, it is not right to the decent inebriate to make him associate with the insane. In Pennsylvania a small appropriation was made to start a state hospital for inebriates. The law will have to be modified, for the appropriation is very small to start with. There are all classes of inebriates, and a hospital, to be a success, should provide for the different classes. Broadly speaking, there is one large class, the old bum, the incurable inebriate, who should be entirely separated from the other classes. But in the cities of Pittsburgh and Philadelphia we have the same thing as Dr. Read referred to. States everywhere should provide proper machinery and they can only have proper machinery by state hospitals, which provide, first, for the curable classes, workhouse conditions, so that society would be spared from their trespasses. I have no doubt that such hospitals are everywhere needed and I have no doubt that good laws governing the whole subject of alcoholism are needed.

From an economic point of view, this alcoholic question has a tremendous number of sides. Society as a whole fails to frown upon the users of alcohol as it should; it rather cultivates the drinker. I do not believe that intense drinking is as proportionately marked today as it was a good many years ago, when everybody drank heavily. Secondly, the manufacture of alcoholic drinks is a business in which are invested hundreds of millions of dollars. Some years ago I tried, with others, to establish a hospital for inebriates in the state of Indiana. We did not succeed. We have tried since and we have failed, and we will continue to fail to a large extent unless the commitment be compulsory for a considerable length of time. I do not believe a year is sufficient; it should be at least three years. We are also trying the farm instead of sending them to the workhouse and are sending them to the farm to work.

Dr. W. S. Lindsay: I simply want to say something of the conditions in Kansas. We examine for life insurance for a company, but I find the answers to the questions are very different from what they used to be. In questions such as "do you use alcohol; what kind; how much?" the answer will be "Nothing." And the question, "If you are a total abstainer, how long have you been?" the answer is, "All my life!" These are the conditions we find in Kansas.

Dr. A. M. Wickstrom: This discussion has been most interesting to me; so much more, that all seem agreed that the average alcoholic is the man who is defective. We all know that alcohol is a toxic substance that tends to injure the human body, especially the nervous system. We know that the children born of the parents who have been in-

jured by this toxin will be defective, more or less, at least the resistance is not up to normal. No one can deny that. The question is what to do with the chronic inebriate. It seems there is only one thing to do, and that is, not to license a saloon where they can go—boy and girl—and get injured, and then take the taxpayer's money to build a hospital to cure them. I see no good scientific judgment in that. Our state of Texas seems to have solved the problem. They have shown in a practical way what can be done to cure the alcoholic. They have shown the effect of it. For my own part I studied this question in Europe and in various countries last year and am positively confirmed in my mind that the only way to treat this question is to treat it in a way that they have done in some states, and in some countries in Europe they are attempting it; that is, to simply prohibit, absolutely prohibit the manufacture and sale of toxin which causes degeneracy of the human race.

Dr. Williams: I am not in sympathy with the theory that the chronic alcoholic is necessarily defective. I am convinced that the inmates in our institutions are there from sociological reasons rather than by reason of their being technical dysomaniaes. They have become nuisances and the county or the city has committed them to hospitals for insane or some place where they can be detained and forcibly compelled to follow a line of sobriety. I believe our relief is not from legislation as a preventive to insanity, but the only relief to be secured is from education. I believe that the best thing is the industrial colony. I think anyone who has had experience will say that the best thing is the institution in which industrial habits are taught and in which habits of shiftlessness can be removed.

Dr. Read (closing): The matter has been quite thoroughly thrashed out and I am greatly gratified by the discussion of the paper. The movement at this time seems to me the logical one, and it is my opinion that we can do more for the inebriates than we are doing at the present time. It has been stated by some of the speakers, and rightly so, that alcoholism is probably merely a symptom of other well-known mental disorders; no one has quarreled with that. I have had a good deal of experience with chronic alcoholics coming to the state hospital. I have seen those who drank only because they were mentally affected and others who drank probably because they were in the beginning inferior individuals, but we could not say they were insane. Those are the people that have to be taken care of; that have to be restrained. Possibly most of them have never learned to care for themselves properly, to live normal lives; others have drifted downward from higher levels and have to be returned if possible. The figures of these institutions already established show that they do attain a considerable, a very decided, measure of success in at least 40 per cent. Now that 40 per cent is worth going after, and if, as one speaker says, you

allow the sale of this toxin, it would seem that the state should provide also for those who are disabled by it.

As for the disgrace of sending a patient to a hospital, I can't see that at all. We send a patient to a hospital when he is sick, has some general ailment, surgical or medical. Years ago they used to be afraid of hospitals for general illnesses. Now we have gotten over that and people are anxious to go, and the better educated they are the more anxious to go.

THE EMOTIONAL FACTOR IN THE ETIOLOGY OF SUICIDE, CRIMINALITY, INSANITY, AND MORTALITY.

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So far as it appears to our senses, every phenomenon of nature—all life processes, animate and inanimate—is but a series of motions or actions. Our mind refuses to admit that science has no existence and that the many aspects under which the sciences exhibit nature are not aspects of a single reality.

We believe with Taine that:

The progress of science consists in the explanation of a series of facts by a higher fact which sums them up. The different sciences can thus be condensed into as many definitions, from which all the truths composing them can be deduced. Then a time comes when we are more daring; we discover the unity of the universe, and understand what produces it. It neither proceeds from anything external to the world nor from any mysterious thing hidden in the world; it proceeds from a general fact similar to the others, from a parent law from which the others can be deduced, just as all the phenomena of weight are derived from the law of attraction and all the phenomena of light from the law of undulations. This law is the final object of science, and if we could rise to its height we should see the eternal torrent of events and the infinite sea of things issuing from it, as from a spring, by separate and divergent channels.

A better comprehension of the mechanism of life has exerted a marked influence upon the evolution of therapeutics during the past few years. We are no longer satisfied to treat merely symptoms, but seek to find the pathogenic cause, be it designated microbic, parasitic, chemical, physiological, or psychological, since there is no action without reaction, and all manifestations of living phenomena refer to one and the same reality, *i.e.* organization.

As I have stated in previous writings, viewing

man from the standpoint of evolutionary monism, the treatment of mental and physical diseases cannot be separated. Mental diseases, so-called, are frequently merely the expression of some general pathological condition, such as specific infections, autointoxication, abnormal internal secretions, cardiac, vascular, hepatic and renal insufficiency, and other conditions associated with disordered metabolism; and we are recognizing that it is not diseases that we are called upon to treat, but disease, a diseased patient. With modern methods of diagnostic precision, we seek the cause and remove it, be it endogenous or exogenous, bacteriological, dietetic, social, chemical, occupational or psychological, whether found in the habits of the individual or in the experiences dating back to childhood and infancy, such as may be expressing themselves in the habits and conduct of the individual and in this manner, are revealing themselves as the determinants of the functional disturbances so often found responsible for mental and physical deterioration and thus conducing to the development of gross pathology. Only with this viewpoint held constantly before us, can the problem of cause, prevention and cure be made rational and effective.

It is the conclusion of contemporary psychologists that each human being is what he is because of his individual experiences since birth, and that when born he is the specific embodiment of all organized experience, whatsoever, that enters into the direct line of his human and prehuman ancestry. A single cell, the fertilized human ovum, thus comprises the raw material of all the higher phases of human character, of what will later manifest itself as intellect, and also of what will express itself as will. The presentative and effective elements of the organism thus co-exist in the fertilized ovum in their integral unity, be these designated as physical or psychic attributes, whether man be regarded as soul, spirit, mind, life, or matter. As biologists, or scientific physicians, we regard these terms as meaning one and the same.

The chemical properties of living things are not fixed, but are subject to certain constant changes and sometimes fundamental fluctuations. All living things, from protozoa to man, are made of the same chemical elements as minerals; a living being or thing is the arena of the same

physical forces as those that govern the inorganic world.

Life is difficult to define because it differs from one living being to another, even of the same species; the life of a man is not that of a polyp or a plant, and if we find it impossible to discover the line of demarcation which separates life from other phenomena of Nature, it is because no such line of demarcation exists; the passage from animate to inanimate is gradual and insensible.

A living being is a transformer of matter and energy, only a current of matter and energy, both of which change from moment to moment while passing through the organism.

All methods of therapeutics are biochemical, be they designated as psychic, balneologic, hemolytic, catylytic, chemic, physiologic or biologic. All therapeutic measures produce results in conformity to a common law, *i.e.*, the action and reaction of physicochemical phenomena. They are physicochemical processes.

The elementary phenomena of life is the contact between an alimentary liquid and a cell; for the essential phenomena of life is nutrition, and in order to be assimilated all the elements of an organism must be brought into a state of solution. Hence the study of life may be best begun by the study of those physicochemical phenomena which results from the contact of two different liquids. Biology is thus a branch of the physicochemistry of liquids; it includes the study of electrolytic and colloidal solutions, and the molecular forces brought into play by solution, osmosis, diffusion, cohesion and crystallization.

The strange analogies between microorganisms and certain crystals and the study of the colloids which the physicists are just beginning, to which belongs protoplasm, suggest the possibility of cellular physics, which, while it may still be called physiology, have methods and technic borrowed from so-called inert matter, practically wiping out the line of demarcation between biology, chemistry and physics. However, let us hope that in the future the type of scientific finality which is merely a survival of the theological spirit will be banished from our arguments. It is difficult to credit the number of false arguments which still cling to medical science and send us into cheap ecstasies over our marvelous progress.

No one can enact by authority the unity of

medicine. But we ought to make it impossible for any branch of medical science to be made or taught by narrow minds, products of specialization pushed to extremes. While the sciences are tending to unite, scientists must not draw apart in mutual misunderstanding. Houllevigue has well said: "An isolated worker is often hampered by a preconceived idea which would disappear before the united efforts of two diverse minds which, striving with the same end in view, would act as a stimulus and a check on one another."

If I had but one word to say to this body, among which are so many men interested in psychiatry as a specialty, it would be to urge that we do not forget the physicochemical basis of life; and I would urge that we take especial notice of the work of the physicists, the chemists, the biologists, the parasitologists, and the physiologists, and, in the light of all of these branches of practical investigation, build that branch of clinical medicine which seeks to ameliorate the defects of the human race to which we are now turning our attention under the name of Psychiatry.

The behavior of organisms depends upon the physical, molecular stability of the organism, as well as upon the external factor, the excitatory stimulus, and there is no such thing as a nervous mechanism functioning separate and apart from both its endogenous and exogenous environment, and so it is throughout the entire realm of pathology.

Clows has shown that the virulence of tumors and their rate of growth were directly proportionate to the potassium content and inversely proportionate to the calcium content. This, he considered, indicated a peculiarity in the equilibrium of electrolytes and in the absorption of electrolytes by the cell. Disturbances of the normal equilibrium would modify the permeability of the cell membrane, and would vary the passage of foodstuffs through the membrane for the nutrition of the cell. The equilibrium of the cell was identical with the equilibrium of its membrane, which in turn meant the equilibrium of the contained lipoids, and this could be expressed as the equilibrium of the electrolytes, showing that the changes constantly going on in pathological processes are being expressed in terms of electrokinetics.

Life may be and seems to me to be the effect of energy which may call matter into being for the purpose of expressing or declaring its own presence and power; and, therefore, when the immediate purpose has been fulfilled, matter may again vanish into nothingness from whence it came, so far as human personality is concerned. The nature factor is the powerful detriment to the individual life, and the impingement of environment evokes the individual reaction of the psycho-physical potentialities of the organism, forcing its peculiar adaptation to the environment in accordance with the law of the survival of the fittest. Nothing is nearer the truth than the statement that an environment that would prove the annihilation of one type of organism, even of the same species, would furnish only wholesome and delightful exercise for another.

There is such a thing as innate psychophysical potentiality, energy which is ever ready for expression, and this thing we call life is a physicochemical process. In whatever form life may be found expressing itself, we have a reacting substance ready to be aroused by a suitable stimulus. The physiologist, the physicists and the biologist tell us that this stimulus may be an electric shock, a chemical substance, the action of light, a change of temperature, a decrease or increase of water, or a mechanical impact. All of these are included in the last named term, *a mechanical impact*, including those external factors that influence the activities of the central nervous system through contact with the special senses,—the reacting cell, organism, nervous mechanism or individual giving the same response to them all.

The stimulus behaves as a kind of releasing agency, liberating what is pent up in the reacting substance, be it an ion, atom, or cell, or an aggregation of cells composing the individual organism, which is set into action by the process. In any case, the thing is, as it were, compressed, ready to explode. The potential energy is in waiting, ready to become kinetic. Once the trigger is pulled, or the releasing agency sets going some condition necessary to the process of action, the further work is accomplished by the power inherent in the various elements embodied in the process.

A rough environment may be all that is necessary to evoke hidden potencies, or to change the organism into a true alchemist, that strives to

convert the base metal of selfishness into the gold of generous deeds and high and worthy aspiration. There is such a thing as the synthesis of physical stability, intellectual strength and ethical attainment, all combining themselves in fidelity to fact and expressing themselves in the life and work of the man of science. The everyday work of the thousands of such men in the practice of medicine, who are the embodiment of these synthetic qualities, attests the truth of this assertion, and these are the men who are endeavoring to make the facts of science bear fruit in the lives of their patients.

Tell us please, of what use is a collection of data called science, of accumulations of a large collection of observations on various natural phenomena, until by the application of persistent thought it is employed to produce definite, tangible, therapeutic results, or is made to become subservient to some useful purpose?

Efficiency is the watchword of the age, but it implies not only a wide knowledge of facts, but a breadth of vision that will enable the relations among the various categories of human knowledge to be seen clearly and applied to the practical needs of mankind. Today we see many of our medical journals so filled with articles devoted to some concrete expression of "disease," or local expression of pathology, that one becomes tired and disgusted at the narrow viewpoint assumed by the investigator. Like a man holding a silver dollar before one eye close and snug, with the other tightly closed, he fails to get a vision of the broader world about him in the light of the shining sun. How refreshing it is under such conditions to see the appearance of such books as Well's Chemical Pathology, Malory's Pathological Histology, Henderson's "The Fitness of the Environment," Leduc's Mechanism of Life, Houllevigue's Evolution of the Sciences, Meyer's Laws of Human Behavior, Abbott's General Biology, Kilpatrick's Genetic Psychology, Mercer's Conduct and its Disorders, Jones' New Era in Chemistry, Martin's Triumphs and Wonders of Modern Chemistry, D'Albe's Contemporary Chemistry, Hilger's Hypnosis and Suggestion, Guelpa's Auto-Intoxication and Dis-Intoxication, Lugaro's Modern Problems in Psychiatry, and scores of other books that are calculated to widen one's vision and give him principles that can be used in the every day practical work of the truly sin-

cere and alert physician. Preliminary to these books, the five-foot shelf of Harvard Classics, or even an intimate knowledge of Darwin's Origin of Species, Heckel's History of Creation, Evolution of Man, and Riddle of the Universe, and Spencer's Biology and Psychology, together with the equipment furnished by the High School, and his technical medical training, should be the common possession of every practitioner, even if he had been deprived of a thorough premedical scientific education.

Far be it from me to belittle the wealth of scientific literature that is now available for the growing man, inviting him as it were to drink freely at the fountain of science and pass it on to his patients as a heritage for the future of the race, people who are a thousand times more in need of facts and principles by which life and conduct can be correctly guided for the achievement of health, sanity and efficiency than to be steeped in traditional superstition, or to be drugged and carved after living in open violation of the physiological requirements of health. Work in special departments of medicine must constantly claim our attention but it is easy in our zeal for our specialties to lose sight of the simple requirements of fidelity to the composite individual as well as to the public at large.

The beginning of efficient living must be by obtaining a correct interpretation of the phenomena of life in order to comprehend the relation between cause and effect, hence the necessity of a knowledge of the sciences. Once a physician has obtained a fondness for the sciences his further development is assured. Only he who is fixed by some antiquated theological dogma, and whose brain cell activity is inhibited through the fear of a concept of a capricious deity, from which he naturally shrinks, fails to grow as long as he lives. It is natural for development to take place under normal conditions and if it does not, then something has interfered with nature. Crampton truly says:

No evidence of evolution could be more significant and interesting than the results provided by the comparative study of development. In the first place it is an obvious fact that every living thing changes in the course of its life history, and if as an adult it occupies a high place in the animal scale, its embryological transformation is more elaborate and intricate than in the case of a lower form. Every one knows that organisms do develop, and yet I believe that few appreciate the tremendous signifi-

cance of the mere fact that this is true, while still fewer are aware that the peculiar and characteristic early stages through which an animal passes in becoming an adult are even more striking than the fact of development itself.

Organic transformation is real and natural. Truth itself is organic and when you begin to feed upon it has a definite structural arrangement in the brain cortex to function forever afterward as an integral part of your personality. For once and forever let us get the idea out of our heads that any man, or set of men, has a monopoly of the accumulated knowledge of the ages. The book of Nature stands wide open and *all who will may read*. The value of an opinion depends upon the evidence upon which it rests. All books of science, philosophy, history, ethics, sociology and psychology, a knowledge of the work of all investigators, shed light upon the path of the truth seeker depending entirely upon his individual mode of reaction to the ideas obtained from his observation of the work of others. Hence the value of correlating experience with theoretical knowledge, as a means of better adaptation to environment or as a means of obtaining the best therapeutic results in the treatment of disease.

The great laboratory of life not only stands wide open but the best piece of machinery for measuring facts and theories is the cultivated brain, the intellect; hence the necessity of persistent study. The really essential thing, if we have capacity for growth, is that we do not limit our point of view to any circumscribed area. The narrow corner of the specialist is absolutely at the mercy of the man who has a broader qualification, if he but decide to adopt such measures as will deprive him of "material" in his broader effort to save human life.

We are evolving, growing and developing. There is an eternal energy within all things that makes for human betterment. We can laugh up our sleeves at the effort of any class of individuals to quell the evolutionary process, which is as active today as it was a million years ago. This idea was beautifully expressed by Whittier when he said:

"I know not where his islands lift
Their fronded palms in air,
I only know I cannot drift,
Beyond his love and care."

Take the above paragraph to mean whatever you choose to read into it. Personally, I do not

propose to dogmatize, not even to save my scientific reputation. I only ask that the dogmatist does not try to force his cock-sure theory upon me. We KNOW nothing of the ultimate cause of reality, if we are but honest enough to speak the truth. Herbert Spencer called it "The eternal energy behind and within all things." Others call it "mind." Some name it "force." The idealists call it "God."

These terms are only abstractions and do not mean anything, except to a splendid hypnotic subject. Give it whatever name you choose, it is life itself—electrical, ionic, atomic, chemical, physiological, vital—used to perpetuate and to transmit life, of which we are a part, indestructible, eternal, illimitable and everlasting. It is action that counts. We know a thing by what it does and by what it is capable of having done to it. The energy of a given body is the amount of transferable motion stored up in that body, and is measured by its capacity for producing heat or mechanical work.

If a scientific hypothesis or religious theory, or school, or thing is annihilated, who can say that it had any right to exist? If your own life is coherently bound up with that of the highest interest of the larger professional body, and that of the larger social organization, you are a free man!

If a concept of a "God" is found to be selfish, capricious, bloodthirsty and tyrannical, such as some of the orthodox churches are upholding and by inciting fear of which are thus enabled to coerce the weak, ignorant and unthinking men, women and children, all of whom are controlled and exploited by their self-assumed "authorities"—clergy, priesthood, or hierarchy—holding them in slavery and passing what is left of their repressed personalities on to our surgeons, to the insane asylums and to the grave, why should he have our respect? Some one has truly said that an honest "God" is the noblest creation of man.

I believe that it was Crile who said that a lion or an elephant knew no such thing as fear so far as his relation to the other is concerned but that an insignificant little mouse up an elephant's snout, on account of the fear that it incites in the animal, could put an entire drove of these enormous beast to flight.

Fear paralyzes the reasoning faculties, the "analyzer" or "adjuster," and disturbs the

equilibrium of the entire human mechanism. Religious control through the incitement of fear is no exception to this general law. Equilibrium is a conception of physical science and as such is susceptible of exact definition. In this light it is evident that the effects produced by fear through religious coercion are physico-chemical reactions.

Fear thus produces harmful pathological effects though less perceptible in the same manner as does a bolt of electricity from the clouds or according to the same physico-chemical reactions that are produced by the spirochete, the hook-worm, tubercle, typhoid, meningococcus, gonococcus or any other specific chemical poison. Fear inhibits the function and retards the development of the higher centers of the brain, thus quelling the further evolution of the individual. It arrests the normal activity of every bodily organ and cell. It kills.

I defy the scientific men of the world to prove that the disrupted co-ordinations produced by the incitement of fear, whether coming from the pulpit or from "the hold-up man," are not in accord with the same destructive forces and governed by the same laws that cause death from all other "etiological factors" of disease, such as those of recognized parasitic origin that have entered the blood. The reaction of the individual to the psychic, electrical, chemical or physical agency causing a disturbed equilibrium constitutes the "disease."

The direct proof adduced by Crile of the mechanistic action that the brain cells play in maintaining consciousness; of the fact that the degree of consciousness depends upon the physical state of the brain cells; and, finally, that efficiency may be restored by sleep, provided that exhaustion of the cells has not progressed too far, has an important bearing upon the subject under discussion. In this greatest phenomenon of life then, the mechanistic theory is in harmony with facts.

Crile's postulates are partly in harmony with my own writings, in that he maintains not that man is in large measure the product of his environment, but that environment has been the actual creator of man; that the old division between mind and body, soul and spirit is non-existent; that man is a unified mechanism responding in every part to the adequate stimuli given it from without by the environment of the

present and from within by the environment of the past, the record of which is stored in part in cells throughout the mechanism, but especially in the central battery—the brain. He further maintains that the human body mechanism is equipped for such conflict with environment as will tend, first, to the preservation of the individual and, second, for the propagation of the species, both of these functions when most efficiently carried out, tending to the upholding and perfection of the race.

In one particular alone would I differ from this postulate so beautifully set forth by Crile. I maintain not only that environment is man's creator, but that man is the actual creator of the environment that creates him. The American government creates our American citizenship, but the people create the American government. Shelter and warmth, food and clothing, education and companionship, constitute the environment that creates man, but man selects or creates these factors that create him.

We have reached the time when the biological principles of evolution, consciously and intelligently applied, are exerting a marked influence upon all the factors contributing to the welfare of human life, the treatment of disease and the promotion of happiness. The doctrine of evolution should reconstruct every link in the chain of beings from the simplest to the most complicated; it cannot afford to leave out the most important of all, i. e., the missing link between the inorganic and the organic kingdoms. If there is a chain, it must be continuous in all its parts; there can be no solution of continuity.

Long ago the penetrating genius of Lamarck seized on the idea that a knowledge of life could only be obtained by comparison of organic with inorganic phenomena. He writes:

If we would acquire a real knowledge of what constitutes life, of what it consists, what are the causes and the laws which give rise to this wonderful phenomena of nature and how life can be the source of the multitude of forms presented to us by living organisms, we must before all consider with great attention the differences which exist between inorganic and living bodies, and for this purpose we must compare side by side the essential characters of these two classes of bodies.

Leduc tells us that synthetic biology includes morphogeny, physiogeny and synthetic organic chemistry, which is also a branch of synthetic

biology, since it deals with the constituents of living organisms.

Synthetic organic chemistry is here already as a well organized science, important by reason of the triumphs it has achieved, as has been well demonstrated by the work of numerous men from Pasteur down to many workers of the present day. The other two branches of biological synthesis, morphogeny, the synthesis of living forms and structure, and physiogeny, the synthesis of living functions, can hardly be said to exist as exact sciences. They are, however, no less legitimate and no less important than the sister sciences of synthetic chemistry.

Our methods of amelioration and cure of diseases have practically narrowed down to two general measures, i. e., those inhabiting the life of the invading parasite and those of heightening the immunity of the host. The laboratory methods of examination of the morphological constituents of the blood and the chemical elements of all other bodily fluids has resulted in the re-writing of some of our physiology and improved the diagnosis and treatment of a number of diseases.

We are accustomed to consider disease as an abnormal biological process, the result of some external action which enters the blood and injures the organs and disturbs their functions, to which the organism reacts either with success or failure. Whatever be the external cause, the reaction of the organism depends upon the sum total of the energies of the organism.

Even in making out our diagnosis, localization, remarks Minowski, does not mean that the whole process is limited to the bounds of a single organ. No organ exists for itself alone. There is such a thing as the correlation of organs and tissues, each and all acting together as an inhibitory or excitatory mechanism. The function of every organ depends on processes taking place in other organs and the products of its own activity influences the functions of other organs. These products may be ferments which promote decomposition in the blood, or they may be hormones which regulate the activity of cells. In other words, it is not enough to make a localized anatomical diagnosis; we must make a clinical diagnosis as well.

May it not be that the influences exerted upon the central nervous system from without exer-

cise a greater influence upon the metabolic or chemical processes than some of those who are studying chemical substances, isolated organs and structures by laboratory methods can appreciate?

Crile reminds us, as we are well aware, that the essential function of the nervous system was primarily to secure some form of motor activity, first as a means of securing food, and later as a means of escaping from enemies and to promote procreation. According to this author, activities for the preservation of the individual and of the species were and are the only purposes for which the body energy is expended. The central nervous system has accordingly been developed for the purpose of securing such motor activities as will best adapt the individuals of a species for their self preservative conflict with environment. He shows that so-called "psychic" states as well as the reflexes are products of adaptation; that they occur automatically in response to adequate stimuli in the environment; that like reflexes they are expressions of motor activity which although intangible and unseen in turn incites to activity the units of the motor mechanism of the body; finally, that any "psychic" condition results in a definite depletion of the potential energy in the brain cells which is proportionate to the muscular exertion of which it is the representative.

Further, that this nerve mechanism may effectively carry out its twofold function, first, of self adaptation to meet the increasingly complicated stimuli of environment; and second, of in turn adapting the motor mechanism to respond adequately to its demands, there have been implanted in the body numerous nerve ceptors—some for the transmission of stimuli harmful to the mechanism—nociceptors; some of a beneficial character—beneceptors; and still others more highly specialized, which partake of the nature of both bene- and nociceptors—the distance ceptors.

According to him the response to contact stimuli then depends always on the presence of nociceptors in the affected part of the body and to the type of the contact.

These adaptive responses to stimuli are the result of the action of the brain cells which are thus continually played upon by the stimuli of environment. The energy stored in the brain cells in turn activates the various organs and parts of the body. If the environmental empacks are

repeated with such frequency that the brain cells have no time for restoration between them, the energy of the cells becomes exhausted and a condition of shock results. He further tells us that every action of the body may thus be analyzed into a stimulation of ceptors, a consequent discharge of brain cell energy, and a final adaptive activation of the appropriate part. Walking, running and their modifications constitute an adaptation of wonderful perfection, for, continues Crile, as Sherinton has shown, the adaptation of locomotion consists of reflexes—ceptors in the joints, in the limb and in the foot being stimulated by variations in pressure.

Why are we not equally justified to postulate ceptors in the cells of the various glands of the body; for the purpose of increasing the metabolic processes in response to the needs of the body as an adaptive mechanism? As a matter of fact, action of body and mind increases all physiological processes and heightens the psychophysiological potential of every element in the human organization.

Crile shows that the bene- and nociceptors orientate man to all forms of physical contact—the former guide him to the acquisition of food and to sexual contact; the latter direct him from contacts of a harmful nature. The distance ceptors (particularly his eyes), on the other hand, adapt man to his distant environment by means of communication through unseen forces—etheral vibrations produce light; air waves produce sound; microscopical particles of matter produce smell. The advantage of the distance ceptors is that they allow time for orientation and because of this great advantage the majority of man's actions are responses to adequate stimuli. As Sherinton has stated, the greater part of the brain has been developed by means of stimuli received through the special senses, especially through the light ceptors, the optic nerves.

Further quoting Crile, the contact ceptors do not at all promote the expenditure of energy in the chase or in fight, in search for food or for mates. Since the distance ceptors control these activities, one would expect to find that they control also those organs whose function is the production of energizing internal secretions. Over these organs, the thyroid, the adrenals, the hypophysis, the contact ceptors have no control. Pro-

longed laboratory experiments seem to prove this postulate. According to his observations, no amount of physical trauma inflicted upon animals will cause hyper-thyroidism or increased epinephrin in the blood, while fear and rage do produce hyperthyroidism and increased epinephrin. This is a statement of far reaching importance and is the key to an explanation of many chronic diseases, diseases which are associated with the intense stimulation of the distance ceptors in human relations.

Crile tells us:

On this mechanistic basis the emotions may be explained as activations of the entire motor mechanism for fighting, for escaping, for copulating. The sight of an enemy stimulated in the brain those patterns formed by previous experiences of the individual with that enemy and also the experiences of the race whenever an enemy had to be met and overcome. These many brain patterns in turn activate each that part of the body through which lies the path of its own adaptive response—those parts including the special energizing or activating organs. Laboratory experiments show that in an animal driven strongly by emotion the following changes may be seen: 1, a mobilization of the energy giving compound in the brain cells, evidenced by a primary increase of Nissl substance and a later disappearance of this substance and the deterioration of the cells; 2, increased output of epinephrin, of thyroid secretion, of glycogen and an increased power of oxidation in the muscles; 3, accelerated circulation and respiration with increased body temperature; 4, altered metabolism. All of these are adaptations to increase the motor efficiency of the mechanism. In addition we find an inhibition of the functions of every organ and tissue that consumes energy but does not contribute directly to motor efficiency. The mouth becomes dry; the gastric and pancreatic secretions are lessened or are completely inhibited; peristaltic action stops. The obvious purpose of all these activations and inhibitions is to mass every atom of energy upon the muscles that are conducting the defense or attack.

So strong is the influence of phylogenetic experience that though an enemy today may not be met by actual physical attack, yet the decks are cleared for action, as it were, and the weapons made ready, the body as a result being shaken and exhausted. The type of emotion is plainly declared by the activation of the muscles which would be used if the appropriate physical action were consumed. In anger the teeth are set, the fists are clinched, the posture is rigid; in fear the muscles collapse, the joints tremble and the running mechanism is activated for flight; in sexual excitement the mimicry is as obvious. The emotions then are the preparations for phylogenetic activities. If the activities are consummated, the fuel—glycogen—and the activating secretions from the thyroid, the adrenals, the hypophysis are consumed.

In the activation without action, these products must be eliminated as waste products and so a heavy strain is put upon the organs of elimination. It is obvious that the body under emotion might be clarified by active muscular exercise but the subject of the emotion is so strongly integrated thereby that it is difficult for him to engage in diverting, clarifying exertion. The person in anger does not want to be saved from the ill effects of his own emotion; he wants only to fight; the person in fear wants only to escape; the person under sexual excitement wants only possession.

All the lesser emotions, worry, jealousy, envy, grief, disappointment, expectation; all these influence the body in this manner, the consequence depending upon the intensity of the emotion and its protraction. Chronic emotional stimulation therefore may fatigue or exhaust the brain and may cause cardiovascular disease, indigestion, Crave's disease, diabetes and even insanity.

The effect of the emotions upon the body mechanism may be compared to that produced upon the mechanism of an automobile if its engines are kept running at full speed while the machine is stationary. The whole machine will be shaken and weakened, the batteries and weakest parts being the first to become impaired and destroyed, the length of usefulness of the automobile being correspondingly limited.

I have quoted freely from this able article of Crile's because it completely substantiates premises from which I have worked for the past fourteen years.

The five special senses are nothing more or less than projections of the central nervous system spread out to reach the surface of the body to receive the impact of the outside world, and every impression made upon man's motor mechanism is such as to activate one or the other of the fundamental instincts.

If these instincts fail to overcome obstacles by calling into play the entire intellectual and physical capacities of the organism there is a disturbed equilibrium in all of the functions of the organism, a misadaptation to environment, hence a disease.

A disturbed equilibrium leading to exhaustion of brain cell power results in functional disturbances such as indigestion, constipation, deficient nutrition, retarded combustion, intestinal stasis and their consequent visceroptosis, cardiovascular, hepatic, nephritic and glandular degenerations. The disordered physical machinery, with the consequent disturbances in the biochemical and cellular changes, aggravate the nervous and mental symptoms and there is a lowered physical potential of every cell and every function of

brain and body. The organism becomes, as a consequence of these metabolic disturbances, less immune to the various infectious diseases; all bodily defences are hindered and we have invented a thousand or more names for these natural disintegrative processes which are not diseases but are the natural consequences of conflicts between the human mechanism and the destructive factors of his environment.

A. Chauffard, Professor of Clinical Medicine in the University of Paris, in his address before the seventeenth international congress, truly says:

Whether from a historical or a practical standpoint, we thus find that prognostic investigation has progressed by successive stages from anatomical lesions to functional disturbances and chemical changes, until it has reached the stage where judgment is based on criteria of a dynamic and vital order. If diagnosis consisted simply, as Pinel would have it, in "assigning to a given disease its proper place in nosology" it would be a most fruitless and conventional effort. Our conception is a very different one; for us diagnosis signifies the recognition, as perfect and precise as our means of investigation will allow, of a morbid condition considered in regard to its origin, its present state, its future course.

The pathological life of an individual appears no longer merely as an interrupted series of isolated episodes; but we try to discern its unity, to follow its continuous course and take into account the sudden and sometimes final deviations and the new pathological directions that may be given to the organism by an intercurrent disease.

Evidence is accumulating to show that, among the many functions of the thyroid gland, one of the most important is a protective action against circulating toxins. Complete removal of the thyroid leads, not only to myxedema—a condition which may be cured partly or completely by the administration of its internal secretion—but also, as is well known, brings with it a considerable risk from a rapidly fatal toxemia. My humble opinion, based upon the successful treatment of goitre by fasting as a means of sterilizing the alimentary tract and of correcting the abnormal chemistry of the entire organism, followed by re-educating the patients out of their abnormal emotions, is that the emotions cause the gastrointestinal disorders which are always associated with goitre, save where drinking water is responsible for the toxins producing the disease.

We are completely ignorant of the mode of transformation of chemical into kinetic energy

in the living organism; we only know that muscular contraction is accompanied by a change of form; that at the moment of transformation the combustion of the muscle is increased, and during contraction the stretched muscular fibre tends to acquire a spherical shape. It is this shortening of the muscular fibre which produces the mechanical movement.

The step which we do not as yet fully understand is the physical phenomenon which intervenes between the disengagement of chemical energy and the occurrence of muscular contraction.

Is it not at this point where intellect or consciousness, the psychic component, comes into play as the determinant in the exercise of its influence upon the material chemical elements of the organism and guides and directs its movements? Is not this intelligence or consciousness also universal and is it not the most needed factor by human beings, sick or well, that its exercise may liberate the potential energy inherent in the human organization and guide its movements in relation to his environment for the purpose of acquiring a higher degree of psychophysiological potential in order that he may withstand the draft made upon his powers in the struggle for existence?

Is it not a fact that the diseased human organism needs more than anything else the specific stimulus of spoken words, ideas, concepts, viewpoints—education in short—to be conserved by his neuron elements as a part of his personality to enable him to use his potentialities as an adaptive mechanism in relation to his environment?

By the results that actually accrue from the employment of these measures for the accomplishment of a definite end, in its application to the treatment of all disease and for the reestablishment of health, I do not hesitate to assert that herein lies the most efficacious therapeutic remedy at our command and that its efficacy is precisely commensurate with the intelligence and the motive of the physician employing it.

The human being as an adaptive mechanism is constructed with potentialities striving for the accomplishment of a definite purpose, i. e., self preservation and species preservation; the instinct of nutrition and reproduction. Personality itself, either regarded from the psychic or phys-

ical component, is but the result of the strivings of these primitive instincts. In every case of illness, matters not what be the terminological diagnosis, we face a human being whose evolution has been retarded or arrested and the bacteriological findings as well as the gross pathology, to say nothing of the symptomatic manifestations of the psychoneuroses, such as neurasthenia, psychasthenia, dementia praecox and other grades of nervous and mental diseases, as well as of all disease processes, are but an expression of a retardation or inhibition of the motor mechanism due either to inherited inferiority, a misadaptation to environment or to a lack of psychophysical potential. Herein is the cause back of the bacteriological factors in disease and of gross pathology as well.

The conduct of each and every individual, in whatever department of life, is the logical outcome of the aspirations of primitive or purely animal instincts. It is likely that these are one and the same thing for in the last analysis all life centers down to and resolves itself into the problems of self preservation and preservation by propagation of the species; for the desire to preserve the species by the begetting of offspring is but a desire, from another point of view, to extend our life beyond our present existence, to project our influence into future generations, in keeping with the law of evolution in general. The importance of this line of thought to the successful practice of medicine cannot be exaggerated.

Heretofore physicians have studied the various parts of the human body and they have obtained a knowledge of the structure of its separate cells and organs. They have, in consequence of this mode of investigation, treated this or that organ such as heart, kidneys, liver or glands, directing their therapeutics, whether medical or surgical, to reach these parts only.

Today we recognize that no organ or structure exists for itself alone but that every structure, organ and part functions in perfect correlation with the brain cell elements and that these collectively are designated as the personality. In other words, we are more and more coming to the viewpoint of seeing the individual whole and seeing him continuous, recognizing that what he is at any given moment, whether in health or disease, is the end product of all that has gone before him.

He is regarded as a mode or manifestation of life, intimately dependent upon his environment, his thoughts and his habits.

The physicians who are rendering the most efficient service to mankind today are those who are endeavoring, through an appeal to the intelligence of their patients, to maintain the efficiency of each individual as a composite organism. They are endeavoring to so equip their patients by teaching them the relation of cause and effect, thus qualifying them to adopt the healthful habits of life, that they can be self-reliant, independent, capable and happy. They are not merely treating symptoms or cutting out the gross physical manifestations of disease which in themselves are of small indicative value, however much they may claim the attention of the sufferer. Nor are they merely treating their patients in spots, such as eyes, nose, throat, heart, lungs, liver, stomach, kidneys, nerves, genital organs, etc. They are recognizing that there is such a thing as the correlation of organs and functions and that every organ, function and cell is mutually dependent upon every other part for its own harmonious existence, as well as upon the external factors which contribute to the development, maintenance, and stability of the individual in his entirety. By taking all of the factors into consideration that contribute to the making of the individual patient, whatever may be his pathology, we are enabled to predict what his future will be, unless a modification or change in his habits of thinking and acting is brought about through re-education.

Education means change. Things are brought about that otherwise would not happen. We can change, that is, educate, any power of body or mind. We can re-educate and develop new capacities, capabilities and powers by the psychophysical stimuli of spoken words, conveying ideas, concepts and view points, to be conserved by the brain cells of our patients, to function forever afterward as a part of their personality. Truth itself is organic and has a definite structural arrangement in the brain cortex. When once imparted from personality to personality, a new element has been added to his psycho-physiological equipment. Education means to lead out, to develop, to re-create, or to re-construct. By passing along to your patients helpful, truthful, practical

ideas such as may be needed by each according to his or her individual necessities, we can enable them to become efficient, capable and happy, even as we are ourselves, *Mens sana in corpore sano*.

A diagnosis of each individual case, both psychological and physical, be it functional or gross pathology, parasitic or chemical, is the first step toward the understanding of our patient. Psycho-analysis enables us to locate the inhibitory or harmful suggestions, the psycho-physiological depressants, which have been conserved by the brain cortex as the result of false education.

It is not so much the "sexual traumas" which have proven harmful, as the Freudians would have us believe, but the harmful interpretation of the natural experiences common to every human life, which has produced the baneful results. People who do not know are easily startled by false suggestions, or false education, whether coming from the pulpit or from any other source. Those who are educated so as to be qualified to adjust their lives in harmony with their external relations, do not suffer from "psychic traumas."

Many books and journal articles have appeared claiming an especial preference for this interpretation or that, but whatever be the technic or mode of psychotherapeutic or psychoanalytic application, the results are in conformity to a common law. The only trouble is that many recent writers are but giving ideas that are the result of some narrow view point, forgetting that they are proving themselves to be the hypnotic subjects of the man who places an especial emphasis upon "sexual traumas."

A human being is in the highest degree of suggestibility at the point of the emotions and since these "traumas" are the common experiences of mankind the physician feels that the "sexual theory" is true because his own emotions are set into vibration by the writer's suggestions. If the reader had only devoted more study to the fundamental motives of human conduct, as well as to the external forces at work in shaping view points, convictions, ideals and concepts, he would soon realize that merely a subjective study of the patient will not suffice. All of the factors coming within the patient's environment, educational, religious, social, occupational, economic and dietetic, contribute their quota to making the in-

dividual what he is, whether in health or disease, as does also his inheritance.

With the confidence and co-operation of our patients, such as is possessed by the average general practitioner, we can take the human body and do with it what we will, if only we are willing to direct our efforts for the welfare of our patient and are not merely seeking our own self-aggrandizement. By the application of known and well demonstrated laws of physiological chemistry, physics, biology, physiology and psychology, with the aid and co-operation of the intelligence of our patients, we can initiate procedures that will re-arrange and renew the molecular elements of every organ, tissue and cell in the human body. We can make it hot or cold, lean or fat, weak or strong, functionally active or inactive, happy or unhappy, long lived or short lived—limited only by the dynamisms of our patient's psycho-physical potentialities and the willingness on our part to make the effort required to promote his restoration.

We can avert fully nine-tenths of the surgery that is being done at the present time, heighten the immunity of every cell in the human body, prevent cancer, Bright's disease and tuberculosis, and increase the living and working efficiency of more than one-half of the inhabitants of the United States fully fifty per cent. It is simply a question of the intelligence possessed by the physician, as the result of inheritance and training and his ability and willingness to wield this instrument of power in behalf of the sufferer by making an appeal to *his intelligence*, instead of seeing "disease" merely in spots, or of simply using drugs to attack the invading parasites, however important such work may be when gross pathology is in evidence, or when our patients have become infected.

Clinical medicine and its application at the present time is far behind the scientific data that is available. In other words, medical practice and art have not kept pace with the scientific discoveries of the age. By making application of what we know at the present time or what is available for us to know, diseases of the blood-vessels, heart, kidneys, stomach, liver, pancreas, spleen, intestines, bones, muscles, lungs, blood, ductless glands, nerves, viscera, etc., are yielding to psychochemic treatment, just in proportion as

we are enabled to secure the co-operation of those needing our aid.

Generally speaking, people have only been educated to allow themselves to be carved and coddled in hospitals, as a means of cure, rather than taught to exercise the privilege of living a sane, normal, efficient life. In the absence of a keener appreciation of the privileges of a normal life, they are forced to furnish their bodies as "material" for operative procedures, while their personalities are being annihilated by priest and clergy, their reason dethroned under the guise of "religion," while physicians are too often the followers of these human parasites, frequently lacking the intelligence and manhood to free themselves from such hypocrisy, and to get their patients to do likewise.

Not one person out of five in the United States will be found normal by tests employed to determine whether he or she is psychologically, physiologically or chemically right and the physicians that are qualified to correct these psycho-chemical abnormalities have hardly begun to appear upon the field of action. Such work requires qualification, time, energy, courage and the willingness to find your own sustenance and happiness in life by promoting the welfare of others rather than merely using them for your own self aggrandizement. Over one-half of the deaths that occur in the United States every year are the sequelae to conditions that could be diagnosed and treated ten years before a physician is usually called, so insidious are the incipient psycho-chemical abnormalities that terminate in gross manifestations of "disease."

Only a comparatively few of the deaths occurring in the United States every year are due to bacteria, or are of infectious origin. The state medicine already in force has well nigh put an end to such diseases, while the deaths due to violation of known psychological, physiological and physical requirements of health are increasing every year. These lives (over 500,000 in the United States every year) could easily be saved by the rational employment of educational methods, applied to the needs of each individual patient, could we but educate the laity to consult us in time to render them service. The field is white unto the harvest, while the real cause of disease is in operation in full blast.

Under the existing educational and religious training, a child is taught that his natural instincts are vile, low and sinful. These instincts are the impelling forces that activate his internal and external bodily movements or activities both mental and physical. A conflict is thus eternally going on between the acquired intellectual components of his personality and his instinctive promptings and he is unprepared to meet them. Self-condemnation, remorse, nervousness, phobias, unhappiness and torture are the result. He may, as a protective mechanism, crowd out of his consciousness the association between the reactions of his primitive instincts to environmental stimuli but he is under a greater nervous tension than ever before and symptoms galore put in their appearance.

His reaction to the stimuli of environment is manifested in painful sensibilities. Sight, hearing, taste, touch and smell are all avenues through which painful stimuli reach the disturbed sensorium. Insomnia, nervousness, indigestion, constipation, autotoxemia, intestinal stasis and all of the resulting syndrome and sequence follows, under various types of mental and physical "diseases." His resistance to bacteriological invasion is weakened and in his body parasites easily thrive and reproduce themselves with their disastrous consequence to human life.

Only about three per cent of the human race die of senility. The disturbed equilibrium of the human organism due to theological hypocrisy so prevalent at the present time forces those who are unprepared to react to such prevarications to seek relief from subjective bodily sensations, manifested by "diseases" of the eyes, ears, nose, throat, stomach, heart, liver, genital organs, or nervousness, insomnia, obsessions, hallucinations, etc., and they seek aid from the surgeon, the specialist for eyes, nose and throat, the general practitioner, the electrician, the hydropath, the osteopath and neurologist, while the real cause of his disturbed equilibrium is still in operation to conduce to the further development of gross pathology.

These sick people do not know whom to seek or what it is from which they are seeking relief. Where opportunity presents itself, we can take these undeveloped patients, learn what they are, who they are, what it is that has made them as they are, finding the cause of their pathology

(and the religious component is never absent), and give them treatment not only for results, be these psychological, parasitic, microbial, chemic, or gross expressions of pathology, but we can show them the cause in the light of the present day teachings of modern science—biology, physiology, chemistry, physics, geology and astronomy—thus making rational employment of suggestion, or re-education, and this is the treatment that is bound to predominate in the future work of the well qualified physician. Such work insures not only relief for the present, but prevention for the future. The people will co-operate with the physician making employment of such measures, just in proportion as they become aware of the incomparable therapeutic results that accrue from their administration, and we thus will deserve their confidence as never before in the history of the medical profession.

Such work is not merely a fanciful ideal but has in my experience been a practical, useful, every-day actuality for the past twenty years, though I never neglect other well demonstrated therapeutic agents. For the last five years of my work, every patient treated by me has yielded a satisfactory result, save one who frankly insisted that she preferred to terminate her life, which she had twice attempted before coming to me, and two others who were handicapped by incompatible social relations, or misadaptations. As a result of re-education, this suicide patient gained twenty or more pounds within two months, though she terminated her life by the self-administration of bichloride of mercury, after she had so far improved that I felt that she could be trusted to care for herself, preferring this course to taking up life under self mastery.

This patient, a college graduate, frequently stated and reiterated that the light that I had given her would have been all that she would have needed to have lived a happy, efficient, and useful life, if only such guidance had come at an earlier period of her life, instead of having been all her life long blinded by traditional superstition.

Notwithstanding the benefit that has accrued to humanity from the discovery and isolation of disease producing germs, a great cause of unhappiness, disease and death is still in operation in the churches throughout the country and if only we dare exercise the courage and the intelligence

to recognize the true relation of cause and effect there is still a greater work before us. We should take such measures as to combat these life and happiness destroying agencies for the benefit of those whose lack of educational qualification render them incapable of protecting themselves.

Scientific education, as a therapeutic resource, is worth all of the therapeutic agents generally employed combined. By its employment from the kindergarten to young man and womanhood, the insane asylums and penitentiaries and hospitals can be deprived of their inmates, and our commonwealth can be made to deserve being called civilized. By the so-called educational methods in vogue at the present time, life is suppressed, personality is annihilated, and millions of our American citizens are held in captivity not only to their hurt, but to their actual destruction.

Seven hundred and fifty thousand people in the United States are dying annually of the so-called degenerative diseases, and with the incontrovertible evidence staring us in the face that half of these—that is 375,000—would not die if the average health, from middle age upward, was as good as it was thirty years ago, notwithstanding the increase of the general average of human longevity as the result of the decrease in infantile mortality. We should not be disposed to take such conditions in complacent acquiescence.

Furthermore, Sir James Crichton Brown, the president of the Section of Psychiatry, at the Seventeenth International Congress, stated:

That all countries from which trustworthy statistics were available showed an increase in the number of lunatics out of proportion to the increase of the population. Comparing the United Kingdom of today with 1859, the notified insane had increased by 276 per cent, while the population had increased by 87 per cent. This disquieting fact, says he, cannot be fully accounted for by more accurate registration, or by accumulation in asylums of chronic patients. There seems to be no good reason why insanity should have increased while the health and material condition of the people had markedly improved. The segregation in asylums of a growing number of insane during the period of sexual activity ought to have diminished the influence of heredity. There are also other factors which should have checked insanity, the diminished consumption of alcohol, the better treatment of tuberculosis and the diminution of sepsis and syphilis.

The situation is equally as disquieting, if not more so, here in the United States, and there are

some of us who are unwilling that the present useless wholesale loss of life should continue without raising a word of protest.

During my last five years of professional work, I have found, practically with all patients, that emotional manifestations were exhausting the brain cell potentialities and interfering with its function as the central battery which stores the energy that presides over the entire physiological machinery. Among them were those with cardiovascular manifestations of disease, high blood pressure or low pressure associated with cardiasthenia as the result of abnormal emotions, as well as degenerative changes in the kidneys, liver, pancreas, blood, ductless glands, respiratory organs and central nervous system.

All emotions are associated with one or the other of the two fundamental instincts, i. e., the self and the species preservative instinct. I repeat again, the result of re-educating these patients so as to equip them to express such emotional impulses by work and useful endeavor or to guide such instincts by reason not held in abeyance by fear, dealing with the facts as they are in this world as demonstrated and taught by the doctrine of evolution, has resulted in the cure of epilepsy, the depressive psychoses as well as the psychoneuroses and other mental and physical conditions to which we have given a thousand names, which are not diseases but are the logical outcome of environmental influences which are exercising life stifling and degenerating influences upon our present civilization.

It is the right, and should be the privilege of human beings to be strong, capable and free. Freedom depends upon the absence of external compulsory motives and therefore upon the fact that not sensations alone but also the images of memory determine our movements. The will is powerless in the presence of a stronger emotional tone and greater associative affinity of the prevailing idea. Hence our actions are as strictly necessitated as our thoughts, for both action and thought are quite identical when viewed in the light of their fundamental characteristics. Both are governed by the same laws; both are associations of ideas or neurone responses to adequate stimuli.

It is through the incitement of the emotion of fear that priests and clergymen are holding and dominating and exploiting our defenseless and

unsuspecting masses, and using them for self-aggrandizement. Capital is strongly supporting and encouraging the church in its nefarious occupation, though there are occasional exceptions to this statement, since it can by aid of the church to disorganize their equilibrium better control the ignorant laboring classes and use them for its advantage.

Licentiousness also has its origin in our abnormal social and economic condition. To train an individual to be governed by emotion in religious affairs and expect him to be governed by reason in relation to the external world, in harmony with external environmental processes, would be to expect him to go in direct opposition to his training. When the normal mechanisms are rendered unstable or taught to respond abnormally, how can we expect the individual to be harmoniously adapted to his external environment?

Another means by which the masses are controlled and exploited is by the enslavement or control by the church "authorities" of the libido or sex life of the female devotees, by the stimuli of songs and sermons filled with sentiments of love, love for the Nazarene, for a "holy virgin," for a conception of an anthropomorphic diety, by which they become so integrated as to be held as if by chains. The priest or minister presuming to be the representative of this "Beloved Son of God" or his father, is the unconscious object stimulus of the congregational female libido and he thus perverts and controls the sex life of the woman and through this female sex control enslaves the man.

Capital monopolizes and controls the raw products of industry by which is obtained the bread which fills the laborer's empty stomach and this completes the enslavement. Together, thus church and capital are marching hand in hand, the tyrannous captors of the masses, holding them in slavery ten times more despotic than ever characterized the ownership of the "black slaves" of the south in the days of openly recognized and legalized "slavery," for the control is not only economic but social as well and it is used not only to their hurt but to their actual destruction, while they are duped by having their emotions aroused by inciting fear of punishment or an assurance of reward in another world.

Not only does this degrading state of affairs jeopardize the sanity, happiness and life of the enslaved captives, inhibiting their psycho-physical potentialities, lowering their vital resistance and predisposing them to infections of every nomenclature, positively creating gross pathology for the surgeons at an ever increasing rate but it actually destroys the harmony of the conjugal relations between man and his wife among the "higher" and "lower" classes, positively preventing a happy and normal marriage relation, inhibiting the development of the higher brain centers, lessening their educability or intellectual development and hence is a frequent cause of divorce, suicide and murder and of the disruption of the home.

In their sanctimonious garb these destroyers of human life, these creators of insanity, criminality and prostitution, are allowed an ever widening freedom and there are "physicians" who acquiesce in their doings since they can participate in the spoils.

I do not believe that the report that "seventy-five per cent" of the men of America are infected at some time during their lives is true. My own observation among men of all classes and under all conditions of life, forces upon me the conviction that this estimate is more than three times that which the actual facts will warrant. Be that as it may, is it any wonder that such a large per cent of married men seek the more normally sexed woman and become infected with venereal diseases by which innocent women are contaminated, the sight of unborn children destroyed, the stability of the nervous organizations of others undone, to say nothing of the influence of this deplorable state of affairs in conducing to the ever-increasing enrollment of the insane, while others by the hundreds of thousands are needlessly taking refuge in the grave, many of whom take the route via the surgeon's clinic.

The surgeons are not to blame. They are doing their best to repair the consequences of the prevalent ignorance and selfishness that is so much in evidence. The physicians who have been forced to acquiesce in this deplorable state of anti-social affairs or in this modern slavery should not be condemned. The cause lies deeper than in the open violation of duty on their part. They have been unconsciously co-operating with a diseased condition of the body social that is a

disgrace to our American civilization, which our sociologists, psychologists, political economists and state and national representatives must solve in order to enable physicians to secure the necessary co-operation of the people so that they can do their work and be true to the highest dictates of conscience, true to their professional calling and true to the highest ideals and enlightenment of American citizenship and, to relieve this state of affairs, we must create a science of education, a science of health and a science of conduct adapted to the needs of our common democracy.

Physicians are only men and they are placed under conditions of life into which they were born, with which they are powerless to cope except by the rules of the game, since a certain degree of harmony between the organism and its environment must exist, if life is to be conserved and happiness maintained. The social environment is at fault. Hence the recommendation of the council of education of the American Medical Association for state medicine was, it appears to me, inevitable as the solution of the problem so imperatively pressing is a social affair and not one that can be handled by any single group or body of men.

I believe that the entire profession of America, by that I refer to the medical profession, stand ready and willing to co-operate in any way that will be for the best interest of the larger social organization. At heart they are honest and sincere men. The masses are just beginning to awaken to a realization of the necessity of guiding their lives in harmony with the philosophy of modern science. Instead, they have too long followed the outworn traditions of the past, to the destruction of the life and sanity of millions of our defenceless men, women and children.

With the facts that I have here endeavored to present as a means of stimulating the process of readjustment, the equitable solution of the problem should not be an impossible task.

Do not imagine that I am laboring under the delusion that I am standing alone. In the medical school and out of it, there are millions of evolving organisms though the conviction is strong that we are beginning to enter into a more independent, practical and trustworthy relation to those needing our assistance and that our greatest work is to be done *with* and *for* and *among* the people who do not yet realize that the

greatest friend to mankind is the honest, plain, common sense, well educated physician.

Twenty years after leaving a denominational college in the south, it was my privilege to renew my association (briefly) with two of my former classmates, who had chosen the ministry as their life's work and it was an astonishment to me to find that there was no inharmony existing between us concerning such questions as those that have been discussed throughout this entire paper. Although we were reared upon "orthodoxy" and steeped in "biblical lore" by the greater part of our college environment, our lives had been touched by that masterly man of science, the founder of the Georgia Institute of Technology, Isaac S. Hopkins, the former president of Emory College, whose influence from the professor's chair and from the pulpit, where he passed on to the receptive minds of his students the message of Darwin, Haeckel and Spencer, overbalanced the effect of all other college environmental stimuli combined, so responsive was the nervous mechanism to ideas that were true. No one factor has contributed so much to the present commercial prosperity, intellectual awakening and scientific development of the entire southern states as this school of technical training under guidance for twenty-five years, up to the time of his death two years ago, of this truth-loving man, aided by an able body of trained scientific experts—a man who left traditional ignorance and superstition to be a real helper of mankind.

Facing as we are a new era in civilization, dead, doubly dead must be the physician who is unable to respond to the crying needs of mankind, and lend his influence to combine the efforts of all people, of all classes, of all avocations, trades and professions, guided by the light of science, for the common welfare of every man, woman and child living upon American soil, whether we are headed by a Wilson, a Roosevelt, a Debs, or a Suffragette.

Regardless of nationality, of politics, of profession or avocation, of race or of creed, is it not time for us to shake off the influence of the dry bones of the past?

In spite of wealth or of social position, be we "high" or "low," rich or poor, protestant or catholic, gentile or jew, are we not willing to come out into the broader light of freedom and happiness, breaking loose from the bonds of our ignorance,

weakness and slavery, and together work for the life, sanity and efficiency of democratic America?

Intelligent, as distinguished from purely instinctive action implies educability and a high order of intelligent action implies a correspondingly high degree of educability. Lacking the necessary stimuli, however, psycho-physical capacity may for long ages remain dormant, unrealized. The problem that should most concern us today, both physician and patient, people of all classes, is how to obtain the necessary stimuli. It is the problem of true educators in every department of life, and it is the problem of the scientific physician, i. e., how shall we get the masses to bring their lives under the guidance of science, rather than continue to submit themselves to the degrading influence of traditional ignorance and superstition, under the cloak of "religion."

The highly evolved human intelligence, the mental factor, as the result of education or training, the influence of environment, is the prime factor in the maintenance of human efficiency; and this supreme psycho-physical factor, when undeveloped as the result of inadequate or abnormal stimuli, is the chief cause of delinquency, vice, crime, insanity, suicide and death, either directly or indirectly.

Do we not need a national system of education, in harmony with biological science, purposely devised for the development of the individual and the evolution of the species?

INSIGHT IN CASES RECOVERED FROM MANIC-DEPRESSIVE ATTACKS.

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* Insight, or perhaps it would be better to say full insight, on the part of a patient for a past mental disorder may be said to be an understanding of his condition during the attack; that is, an appreciation of the abnormality of his actions, mood, delusions or hallucinations, and in certain cases some knowledge of the dependence of these features upon each other.

It is impossible for a patient to have insight for a period of which by reason of clouding of consciousness he has no recollection. Extreme distractability, retardation of thought or concen-

tration upon certain distressing thoughts may result in inattention to one's surroundings and consequently a failure to form memories of them. It is to be expected that an individual of low intelligence would be lacking in an appreciation of an attack for the same reason that he has deficient knowledge of other things.

Insight, at least for that part of a mental disorder which is remembered, is ordinarily considered as a criterion of the complete recovery of a patient who has suffered from any psychosis.

Since manic-depressive insanity is commonly considered as a recoverable psychosis it might be supposed that all who had passed through attacks of this disorder would have insight.

In the latest edition of his text book, Kraepelin speaks of cases of manic-depressive insanity who lack insight for the attack. His remarks on the subject may be translated as follows:

Frequently the patients obtain no full clearness as to the extent and meaning of the disease. They admit that they have been excited or sad, but lay the blame on accidental circumstances, the attitude of their environment and the fact of being brought into the asylum. They do not care to be reminded of the period of disease and avoid all discussion of it. They get out of the way of the physician if they happen to meet him later. Some patients, who are still somewhat excited, complain of those things which happened during the attack, such as the alleged illegal robbing of their freedom, or they give a description of the attack in a half humorous, half indignant, but always very personally colored manner.

Among the records of cases of manic-depressive insanity admitted to the Kankakee State Hospital, 148 were found in which a more or less definite statement was made in regard to the insight of the patient for the attack after its acute manifestations had subsided. Of these 123 or 83 per cent were said to have had insight, while there were 25 or 17 per cent without.

There were 106 who had passed through a manic phase. Of these 82 per cent had insight. Those of the depressed type numbered 30 of whom 90 per cent had insight.

Five cases had passed through a so-called mixed type. There were only three of these, a relatively low number, who had insight. These cases are too few in number and not sufficiently studied to justify definite conclusions regarding them.

Of seven cases of the circular type two had

insight for the depressed state but not for the manic.

These figures suggest that the great majority of cases recovered from the disorder in question have more or less insight and that this is somewhat more apt to occur after depressed attacks than after the opposite state. Conversely they would seem to show that a certain per cent of the cases which are called recovered do not have insight.

Nothing more than very general conclusions are warranted, for the information was in many cases contained in a bare statement that the patient did or did not have insight and in some instances its occurrence was qualified as partial, slight or in some other term which left one much in the dark as to the actual state.

In view of Kraepelin's statement it may be taken as a fact that some manic-depressive patients do not have full insight and yet must be considered as recovered. This last term does not mean that a patient of this sort has returned to a state in which there is no vestige of the condition on account of which he was called insane but rather that he has returned to his usual state, one in which as is well known affective oscillations occur. Since the actual psychosis as well as the slight oscillations of mood, which in mild degree are commonly found in these patients, are but the reactions of a certain type of individual, it might be expected that all features of the psychosis would depend upon the type of personal make-up. One may therefore look to the personality of the patient with the view of finding an index of the amount of insight which will be present. Two cases may be briefly reported here; one with, and the other without, insight. One seems to show quite definitely a make-up which would permit of a realization of the nature of the situations which transpired during the psychosis whereas this is not so in the other.

Case 1, Mrs. Z. The mother committed suicide at 35 years of age. She had been in an insane hospital at one time. A brother committed suicide and one sister is "in poor health, suffering from neuralgia." It is stated that "there never was a generation in which there was not a suicidal tendency."

The personal history is unfortunately quite meager. From it is learned that the patient "has always been depressed," although the statement is made that she was "normal in her childhood." She is said to have been "bright in school."

At 27 years of age she passed through a period of depression lasting two weeks and another of one month's duration when 31 years old. After each attack she returned to her normal state. At 43 years of age she again became mentally disordered and was sent to Kankakee. There she passed through a period of about two months' duration, characterized by marked depression, some evidence of retardation and at times considerable agitation.

A portion of the catamnesis as obtained from her after she had returned to her normal condition is given here. She had been feeling badly. She began to worry for fear she could no longer support her children. "Everything seemed like a mountain. It seemed as though I couldn't lift my feet or raise my hands to my head. I don't remember for three days before coming here. The trip here seems like a dream. I remember being on a train with two women, one my sister. I remember something about coming in, but I don't remember whom I saw." The patient had no recollection for some of the formal happenings but said that she always realized her own identity and appreciated things said to her, although she sometimes misidentified the speaker. She thought she was told to get out of bed, but there was nothing else that suggested hallucinations. She was at all times depressed. She believed the day of judgment had come and all her children had been ground to death in a sausage machine. She feared her fate would be a much worse one than that of her children and supposed someone was coming after her whenever anyone entered the ward. She thought she was going to be judged and punished at the staff meeting. In describing her state of mind she said "It was terrible." She kept thinking she might have been better to her family, etc. That she realized that she had been in an abnormal condition is shown by her statement. "I was mentally unbalanced." "I was not mentally responsible." Even if someone had given her money enough to insure the support of her children at the time when she worried most about that question she would have continued depressed. This also shows that she appreciated the fact that she was in a state which was not normal for her. Her attitude of accepting the statements and opinions of others was shown by her remark, "If my sister should tell me she wasn't with me in coming here, I'd believe it." "I listened to the other patients and began to realize what sort of place I was in and supposed I had been sick mentally. I was so relieved when I found I was not to be punished." She had been told that she was placed in the ward for the acutely disturbed and was asked what she could conclude from that fact. She answered, "I suppose I'd been pretty bad." This was despite the fact that she evidently did not like to think she had been disturbed.

This patient very evidently had very good insight for those things which she remembered. There was a very fair appreciation even of those things that she did not know at first, the char-

acter of her surroundings, etc., and the occurrences of which she had no recollection, e. g., being moved from one ward to another. This seemed due to the fact that she was on good terms with others and was willing to learn from them.

There was evidently the same attitude in meeting those problems which occurred during her ordinary life at home. People were always good to her and she never had quarrels with her relatives or her neighbors, "could get along with anyone." Her teachers were kind to her when she was going to school. Her husband was very good to her although he sometimes did not give her quite enough money to pay all the household expenses. When the patient was 38 years old her husband left her. It was learned that he had appropriated for his own use some of the money belonging to the firm for which he worked. There was a rumor that he had run off with another woman. Although the patient was greatly shocked and "hardly cared to live," she made up her mind she would have to make the best of the circumstances in which she found herself. She went to work and supported her four children. Both her husband's relatives and her own were kind to her at this time. The latter wanted to pursue the husband and bring him back, but the patient said that if he did not want to support her, she did not want him to do so.

Her attitude at Kankakee after returning to her usual condition bore out her statements in regard to her way of meeting situations. She was cheerful, quiet, on good terms with all and in fact was congenial with some with whom most of the others could not get along. She believed her relatives were acting in her best interest when they brought her here.

Case 2, Mrs. X. Nothing of importance was learned in regard to the family history. The patient had a high school education. She was always of a "nervous disposition," given to outbreaks of anger and periods when she was restless. Although she was generally happy and looking for fun the "tears were always near the surface" and she grieved about trivial matters. An unstable affectivity is shown here quite clearly. One fact of special interest in the anamnesis is that throughout the patient's life she has been one who was determined to have her own way despite the wishes and rights of others. She never would admit that she was at fault in any way. As a child she

would hold her breath when crossed. At one time she would not breathe and became apparently unconscious. Her father snatched her up and it happened that her head was bumped. The shock brought the patient to herself at once. This incident was said to characterize her behavior throughout her life; that is, she met all opposition by any defense available whether that defense was justifiable or not and regardless of the trouble it might make for others.

At 38 years of age after nursing her child through an acute illness she had an attack of three weeks duration in which she "was decidedly talkative and restless." The patient denied the truth of this description but said she had a "nervous breakdown." She admitted that she had tried to jump through a window and did not try to explain her action except by saying that just at that time a friend of hers was being operated on and through some supernatural means the patient realized her friend was going to die. It is possible that the patient was clouded during a part of this period.

She apparently recovered completely from that attack. At 44 years of age shortly after the death of her husband she passed through another mental disorder characterized by an elevated mood, pressure of speech and activity and distractability with fairly clear grasp of the situation. This condition was followed by an apparently complete restoration to her usual condition. Even at this stage she showed an inability to consider anything but her own desires. She quarreled with the other patients, became angry on slight provocation and cried readily if she thought she was rebuked, although she met any charges with excuses and a defense which was at the expense of someone else.

Insight was lacking. In spite of a very definite history of having been restless and nervous for several days before commitment she denied that she had been other than her usual self until the day before this took place when (so she alleged) she was attacked by a certain merchant's assistant. It is known that the patient went to the merchant's shop to get an article of dress belonging to her, but the balance of the history as to what occurred in the shop is lacking except as given by the patient. According to her statement she struggled with the assailant for over five hours. A relative of the patient stated that the latter "went insane" while in the shop and that it "took two policemen to lock her up." The alleged assailant actually disappeared directly after the episode.

The patient said she was asked to go to the police station to testify against the man who had attacked her. While there a doctor gave her some medicine because she was slightly nervous. This "dope" as she expresses it, made her more nervous and the judge sent her to Kankakee, although she denied that she was more nervous than anyone would be who had passed through a similar experience. She thought there was no reason for placing her among other

restless patients. She admitted having broken a window but said she did so because she wanted fresh air. Restlessness, talkativeness, and exhilaration were denied. It will be noticed that some one else was always to blame for the situation in which the patient found herself; her assailant for making her nervous (at least it is known that she had been so for several days before), the physician for giving her too much or the wrong kind of medicine, the judge for sending her to an insane hospital without cause, the physician for keeping her on the disturbed wards, etc. The nurses, the other patients and her own relatives all received their share of her condemnation.

In this case it is evident that the reaction of the patient toward the attack bears the same stamp as her attitude toward other occurrences in which she has found herself at a disadvantage. There is an unwillingness to accept any view in conflict with her own and a tendency to lay all blame upon others, which made it difficult for her to get along with anyone. This was shown by the fact that even though her relatives admitted she had returned to her usual state they were not anxious to take her to their homes.

The cases reported above have in common certain factors which might aid them in forming a conception of the past disorder. I refer to the indubitable fact that each was adjudged insane by a jury or commission, that she was sent to an insane hospital, that she was placed among other restless patients and given certain treatment and that finally these things were discussed with her by her relatives, the other patients and the physician in charge. One of the patients accepts these facts and uses them in forming her conception of the attack. The other looks at her psychosis in a way that reminds one of Kraepelin's statement that certain patients still suffering from some excitement give a description of the attack in a "very personally colored manner."

The important factor here is that each views those things which happened during the psychosis in the same way that she views everything throughout her life. In other words the fact that one has insight and that the other has not, is due to an individual type of reaction, a manifestation of a certain personal make-up.

In speaking of insight and using this as a criterion of recovery, type must be weighed.

In conclusion I wish to thank Dr. H. Douglas Singer for valuable advice in the preparation of this paper.

DISCUSSION.

Dr. Solomon: The lack of insight in manic depressive insanity is rather common, I believe, amongst the negroes. A lack of insight is due to the constitution of the individual or to the fact that the manic depressive has a certain admixture of dementia præcox.

Dr. Cohn (of Kankakee): I enjoyed listening to Dr. Clark's paper. On the whole it meets the same experience that I have had in the care of many depressives. I find that the main factors which decide the insight of these cases, after recovering, is, first, the original mental status of the individual. Secondly, the intensity of the insane attack, whether that attack was intensely maniacal or had a great deal of retardation. I doubt that a recovered maniac has no insight at all. It is true, they distort the things which occur during their insane attacks, but there is some resemblance to what actually occurred while they were in the attack, and, therefore, I have concluded that they have insight in a greater or less degree.

Dr. Clark (closing): I was very glad to hear all the remarks under discussion. In regard to Dr. Solomon's statement about the negroes I should judge that would be much the same for the reason that we find the majority of negroes are a lower class. The remarks about dementia præcox, that it is due to an individual type of reaction, I agree to and that the excited patient perhaps is due to the type of personality, I also agree with. The type of attack spoken of by Dr. Cohn I certainly think would be a factor and for the same reason that we also have to do with the type of person who has it. I agree with Dr. Cohn there is no case of mental insanity where it is not proven that he has passed through some sort of an attack.

In conclusion I only want to say one thing more. There is, at least as far as I could find, no literature on this subject, except little bits here and there. Therefore this paper had to be made up without recourse to literature and is simply a contribution. There remains much to be said.

*Tuesday, July 14, 1914, 9:00 A. M.,
Hotel La Salle.*

WISCONSIN'S FIGHT AGAINST DEGENERACY.

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To grieve for the glories of a social condition that might have been and to dream of social Utopias that may not be, are equally unprofitable diversions. The past is gone beyond recall and no future day now holds promise of even an approximate realization of the ideal so vividly

and so beautifully portrayed by Sir Thomas More. Still the modern eugenic program makes entirely feasible and practicable a certain degree of social advancement for which it is well worth while to strive. Such a program is not to be carried out by an effort to breed a race of "giants and geniuses"—No, but by the simple process of increasing the fertility of the fit and diminishing that of the unfit, of those afflicted with grave defects, which may by inheritance affect the usefulness and the happiness of future generations world without end.

In this connection I purpose to speak specifically of such conditions of degeneracy as exist in the state of Wisconsin, and then to note what effect our state war on degeneracy may reasonably be expected to have upon the social status of that great commonwealth. I refer to my native state specifically because of closer acquaintance with conditions there and because I believe such conditions to be fairly representative of those of the country at large. The Board of Control of Wisconsin State Reformatory, Charitable and Penal Institutions has supervision over twelve state institutions, one semi-state institution, thirty-two county asylums, seventy-one jails and forty-five poorhouses. All told there are twelve thousand souls under the care and keeping of this board, or one to every one hundred and ninety of population. This does not include the insane in private sanatoria nor the one thousand or more feeble-minded awaiting segregation. To properly carry on the routine work of these institutions requires the expenditure of \$800,000 annually and the services of thirteen hundred men and women.

When one person out of every one hundred and ninety of population has become a ward of the state, is it any wonder that grave apprehension is aroused? In war, in pestilence or in famine, in times of high taxes or of high cost of living, the one in every one hundred and ninety must be clothed and housed and fed at public expense; for every noble sentiment of humanity bespeaks the care of the helpless and the unfortunate.

I am glad to say that Wisconsin has awakened from her lethargy and indifference and is making a well-directed effort to unload this "white man's burden." In the field of restrictive eugenics, we are waging war on degeneracy. Our last

legislature particularly was prolific in restrictive legislation, no less than three important measures having been passed by that body and enacted into law by the governor's signature. I refer to 1, the marriage license law, 2, the law prohibiting the marriage of first cousins, and 3, the sterilization law.

1. The state has recently acquired a great deal of newspaper notoriety through an attempt to enforce a so-called "eugenic marriage law." In reality the marriage law passed by the legislature should have been called a hygienic marriage law, for only by a very liberal interpretation of the word "eugenic" can it be made to include the eugenic idea. Its aim is to restrict the marriage of men suffering from venereal diseases, until such time as a cure shall be effected. The eugenic marriage law to which I refer provides that parties applying for a license to marry shall sign a statement in the presence of two witnesses, that neither of them is epileptic, or insane, or idiotic, and that they are not within the prohibited degree of consanguinity—a perfectly just and reasonable requirement, and one that the interest of the state and the race assuredly demands.

Sweet Nerissa's idle doctrine,

"The ancient saying is no heresy

Hanging and wiving go by destiny,"

is all wrong. It smacks of the pernicious Calvinistic doctrine of foreordination. It only marks time to the steps of human progress and we are looking for progress everywhere, even in the modern science of getting married. Witness the numerous press reports to the effect that people about to be married are giving heed to the teachings of eugenics in this important respect. Here is convincing evidence of a sincere and patriotic desire to do that which is for the best interests of the nation and of the race. Once the custom is established, the thing is done; for custom is a mighty force. Not only are fashions made and unmade according to its dictates, but affairs of real pith and moment in social, religious and political life obey its mandates. Yea, verily, marriage ceremonies and funeral rites are alike subject to its far-reaching influence. And why not the custom of giving heed to the proper conservation of human protoplasm? The most precious of human heritages is eugenic fitness and none is more worthy of being transmitted

unimpaired to future generations. The most wanton, the most cruel of human heritages is a defective mind or body, and one from whose malignity the state and the race cry out to be saved.

2. The law prohibiting the marriage of first cousins is, on the whole, a salutary measure, for while there are many admirable traits that might be emphasized by the union of cousins who possess the same desirable and no undesirable characteristics, the danger is great that the same latent defective characteristics in both parties may become patent in their offspring. It seems to be pretty well established that both latent and patent characteristics follow the same law of inheritance.

3. Wisconsin's sterilization law, similar to the one in operation in the state of Indiana, provides for the appointment by the board of control of a surgeon and an alienist, who shall co-operate with the superintendent of each state and county institution in examining the mental and physical condition of all persons legally confined in such institution. If these three shall decide that procreation is inadvisable in any case, it shall be lawful to perform such operation for the prevention of procreation as shall be decided safest and most effective, and then only upon the authority of the board of control.

The board is moving slowly and deliberately in carrying out the provisions of this law, no operation of the kind specified having yet been performed. However, a worker is in the field gathering information from the various state institutions as to the individuals most likely to come under the provisions of the law. It is then her purpose to visit the homes of these individuals, as far as may be practicable, and obtain first hand information as to the inheritance or non-inheritance of mental or physical defects.

By the enactment of such laws as these, Wisconsin is attempting to prevent the propagation of her defective classes. The segregation and supervision of these classes of individuals, and the sterilization of those who, though mentally deficient, are self-supporting when at large, will prevent the horrible renewal of defective protoplasm that is contaminating the stream of human life. The normal mind fairly reels with horror at the enormity of this crime against the state and against humanity.

So far I have said nothing practically about criminals, because it seems to me that in our analysis of this class of individuals our minds are enveloped in obscurity and confusion. I must take exception to the practice of placing criminality in the same category with insanity, epilepsy and feeble-mindedness. Crime is a term applied to certain anti-social acts. It is the violation of a civil law. It pertains entirely to civics. I conceive degeneracy to be a violation of a biological law. It results from the union of two germ cells that nature never intended to be united. True, many criminals so-called are degenerates but they are primarily degenerates and secondarily criminals. They are criminals only in consequence of their mental deficiency and are wholly irresponsible for their anti-social acts. They are the insane criminals, the feeble-minded criminals, the epileptic criminals, and they should be permanently segregated and treated as such rather than committed to a penitentiary for a term of a few months or years then turned loose upon the public, neither cured nor reformed, only to commit other crimes and to hand down their degeneracy to future generations. I would designate this class of incompetents by the term demendelicts, indicating those persons who commit offences against the civil law by reason of their mental deficiency. The state of Wisconsin has recently opened the doors of a new institution for the segregation of insane criminals and the criminal insane. Why not an institution for the permanent segregation of feeble-minded and epileptic criminals, whose numbers are far in excess of those of the insane criminals.

Bearing this distinction in mind, criminal anthropology will have to be rewritten. The statistics of criminal anthropometry have always been of doubtful value but, in view of the above differentiation, compiled in American prisons where also so large a proportion of convicts are of foreign birth (30 per cent in Wisconsin), they become absolutely worthless.

The non-degenerate criminals to whom I would limit the term criminals, constitute a group of individuals normally developed both physically and mentally. Oftentimes they are cool, shrewd, calculating, farsighted, but the product of a bad environment. The records I have made in connection with the admission of

prisoners into the Wisconsin penitentiary will show that from the fourteenth to the eighteenth year is the most critical period in a boy's life. Many who afterwards become criminals are at this tender age in consequence of the death of one or both parents and the possible disruption of the home or in consequence of family quarrels, thrust upon the world to depend for a living upon their own resources. It is then that they contract habits that make of them desirable or undesirable citizens. Crime has its inception in vagabondage and incorrigibility. Of the 727 admissions during the years 1912-13, 42 per cent admitted that they used liquor to excess, and 13.7 per cent denied the use of liquor *in toto*. I believe that I am well within the limits of the truth when I say that 60 per cent of our convicts find their way to prison life directly or indirectly through the influence of liquor.

Another large class of criminals are such by preference. Many thieves, burglars and yeggmen ply their nefarious trade as a profession. They say "it is easy money" and, despite the danger of being apprehended and sent to prison, they prefer that means of gaining a livelihood to one of honest toil. Accident and want are also of importance in the genesis of crime.

Nationalism and eugenics are intimately intertwined. National success lies in the hands of an able, patriotic, and enterprising citizenship. Indeed, the one superlative condition upon which a successful civilization is built up, is a successful eugenics. That nation whose customs, whose patriotism, whose religious tenets, insist upon the production of high grade men and women must ultimately prevail over such as give no heed to matters of so fundamental import.

It is obvious then, that national and racial progress must come from a progressive improvement in high grade families. All retrogressive variations, the pathological sort, the insane, the feeble-minded, the epileptic are a dead weight upon humanity and for their support consume the time, the energy and the resources of the progressive element of population. The progress of any race or nation is directly dependent upon the relative proportion of these two elements. The history of the rise and fall of all great civilizations of the past from "Ancient Babylon to Modern Spain" gives striking evidence of this truth.

Finally, eugenics teaches that within the solemn facts of heredity lies the magic key which opens the door to all that is positive and certain in the physical and moral uplift of the race. Having the knowledge, are we not morally responsible for its faithful application? The man who by an inauspicious marriage knowingly pollutes the blood of his family, who consciously degrades the minds and the bodies of his progeny, is dishonest to his trust, robs his children of their just inheritance, and reduces them to a state of physical and mental beggary. Where can you find a cruelty more wanton or more heartless?

What modern sanitation has done towards conquering disease and converting pestholes of contagion into gardens of healthful activities is the marvel of the age. The conservation of human protoplasm, the perpetuation of sound human stock and the repression of the unfit and incompetent is no less desirable, no less imperative for the welfare of the race.

The faithful application of this eugenic dogma means a new order of nobility, a new aristocracy founded on something more stable than wealth and of infinitely more worth than social position. Here, too, is a field where science and religion may clasp hands over the grave of past bickerings and strife and go forward on firm ground towards the realization of a nobler, a braver, a more altruistic humanity.

DISCUSSION.

Dr. Lewis: The doctor spoke about two divisions of the management of the tendency towards degeneracy; one was through law, the other biologically. The statement that he made in regard to the biological end of the question was so brief that we could not get his viewpoint. If it is improper that two inferior germ cells should unite and the state should interfere to keep from uniting, we should go back of this. This is the question that we should consider; how is it these germ cells should be provided to give us good citizens?

Dr. Abrahamson: I think a very proper subject in the prevention of psychosis is the question of trades and the development of trade schools in this country such as there are abroad. I think there is not a proper selection of trades; the boy is not properly advised in the school. I have seen those who could hardly read and write conceive the idea of studying pharmacy. Think of a psychopathic individual becoming a doctor! If it were possible to guide such individual into a more rudimentary line instead of the line that he chose I think a great deal would have been accomplished. Take the case of Harry Thaw. He would not have developed in the

way he did. I think some means should be provided for the proper advising of the parents as to what trade the boy should enter. The doctor, the family physician, the parents and the teachers ought in some way or other get together. The mother ought to be advised to ask the teacher or to see the doctor and see what the boy is properly fitted for.

Dr. Koppnagle: I do not believe that any eugenic law will ever do away with degeneracy. To quote Dr. Jacobi of New York: "Epilepsy and idiocy are in a great many cases the result of injuries at birth." Why? It is not the place here to discuss. Now, then, we will have epileptics, idiots, due to the action of the physician. Eugenics will not control him. So in this respect eugenics will not stop dementia nor degeneracy. The doctor also divided criminals into so-called involuntary and those by preference. I want to ask the doctor whether he really believes that men are born with preferences for crime or for virtue; whether it is not a fact that crime is the result of environment, to which we physicians pay very little attention? You can burn out a crime in my estimation that is not due to economic conditions and unless you physicians are going to command a remedy that will do away with the extremes of poverty and riches you will have your degenerates and eugenics will not correct it.

Dr. Neu: We make laws to prevent intermarriage of some who are considered unfit for that purpose. The number of individuals who are not permitted to marry and the achievements that are made along that side amounts to very little. We all know as physicians that the sexual life of the human organization is one of its predominating characteristics, and no law is going to prevent that part of our make-up. So far as the question of sterilization is concerned, it is true we have it in some states; the majority who are recommended for sterilization are all inmates of insane institutions. Whether they are idiots or imbeciles, sterilization is going to have very little effect.

Dr. Wickstrom: This is a great problem, a problem that ought to be approached, first, by education. Education should not only be extended to the fit; it seems to me that while we try to prohibit the reproduction of the unfit, we should also aim to encourage the fit to propagate their kind. A very superficial observation will show us that the so-called fit, physically, mentally and socially, fail to produce their kind; otherwise, why should the homes in various parts of the country be childless? Education must precede and follow up legislation and education ought to be aimed, first of all, at the so-called fit to realize that it is the beauty as well as the appropriate thing; otherwise, we will in time have the unfit the predominating class.

Dr. Drake (closing): I am very much gratified at the discussion and criticism. I feel, too, that education is the solution of the whole difficulty and that legislation is only one step toward the education of the public.

THE RELATION OF THE CEREBELLUM TO THE LABYRINTH

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We occasionally hear of individuals discussing the functions of the cerebellum without attaching any great stress to its relation with certain other organs. While it is generally admitted that the cerebellum is subordinated to the higher centers, yet there are those who do not give sufficient emphasis to the interrelations of cerebellar and cerebral functions, the substitution of the one for the other being frequently overlooked. The automatic acts, the coordinate movements and the efforts toward equilibration were once willed movements on the part of higher mechanisms at the expense of consciousness and the delicate psychic formations. With the cerebellar systems intact there is greater energy provided for psychic activities. In the event of embarrassment to the cerebellum or a break in any of its systems the cerebral and other functions must be invoked to make substitution, consequently psychic functions become correspondingly diminished, resulting quite frequently in mental weakness. The substitution is partly effected by the labyrinth. The intimate relation of the vestibular apparatus to the cerebellar mechanism facilitates attempts at restitution of cerebellar functions.

Sometimes otologists in their writings concerning the labyrinth and its anomalies do not consider, or fail to note, the influence exerted by the cerebellum. In considering the labyrinthine functions great stress or emphasis is placed by ear specialists upon muscular tonus as due to constant excitations coming from the labyrinth and the factor this mechanism offers in the maintenance of equilibrium, no mention being made of the cerebellar control in this connection or as an inhibiting factor to the cerebral and labyrinthine impulsions. The intimate associations of the centers of these two mechanisms and the similarity of their phenomena are worthy of considerable consideration in interpreting certain anomalies in station and motility. Phenomena arising from a vestibular lesion usually disappear more or less in a short time if the cerebellum is intact, but in the event of a lesion of the vestibular apparatus in a cere-

bellar case there is not likely to be any restitution; on the other hand a cerebellar anomaly occurring in a previous vestibular case is likewise subject to the same result—no restoration of function. This suggests some interrelation of the labyrinth and the cerebellum. The anatomical connections of the two systems also verify this view. Perhaps such relationship should be of interest to the otologist and neurologist alike.

The cerebellum is so situated in the cerebro-spinal axis as to maintain anatomical and physiological connections with almost all other parts of the nervous system. These close connections and extensive relations of afferent and efferent mechanisms are quite suggestive of the functional demands of this important organ. Perhaps no other part of the nervous mechanism has been more subject to study and experimentation with such diverse views or want of uniformity of opinion as to functions and the anatomical connections. Even today in the light of the various observations made in the direction of experimental, physiological, clinical and pathological research the cerebellar phenomena are far from being thoroughly and generally understood, at least opinions are somewhat at variance regarding certain cerebellar peculiarities in particular. A knowledge of the physiology of the cerebellum is far from being complete. Experimental lesions confined to the cerebellum alone are exceedingly difficult without their influence being extended to contiguous structures by shock or otherwise, owing to intimate and extensive connections. Cerebellar cases with pathological lesions limited to the cerebellum are comparatively rare and, of course, are exceedingly valuable in connection with clinical observations to establish definite knowledge relative to the cerebellum and its physiology.

For many years a number of men have been studying the cerebellum in the attempt to determine its functions and physiological connections with other systems. Much of our knowledge here is obtained from animal experimentation, clinical observations and pathological findings at post mortem. As mentioned above, there is a want of uniformity in results from pathologic lesions on account of complications. The cases of pure cerebellar disease are infrequent. The experimental work has been performed upon various animals, such as birds, dogs, rabbits, fish, reptiles, monkeys and others. Each

class of individuals followed different methods and observations were made under varied circumstances. Many induced anesthesia, others did not. In many experiments lesions were too extensive, embarrassing other organs, and the observations were noted during the stage of shock or diaschisis. Others were conducted under more favored conditions. Consequently there is necessarily a lack of uniformity of opinion of even the best observers, especially with reference to the mechanism of certain phenomena. For example, a few physiologists venture the opinion that in the cerebellum repose the centers of organic functions, the vestibular mechanism, special sensation, the muscular sense, the mechanism of coordination, and regulation of movements, as well as the mechanism of equilibration. Some of the recent workers do not accord to the cerebellum such extensive functions, basing their opinions upon their findings from uncomplicated cerebellar lesions as hemorrhage, small tumors, softening and atrophy in particular, in connection with experimentation. Investigations pursued with the view to determine labyrinthine functions and their cerebellar connections have been quite extensively conducted by many prominent physiologists, establishing in the two systems both analogies and differences in phenomena. Lesions of the vestibular apparatus present certain symptoms analogous to those arising from cerebellar anomalies. The connections of the nuclei or centers of these two mechanisms are no less interesting or unique than their physiology and pathological physiology.

Before comparing the functions of the cerebellum and the labyrinth a brief reference to the anatomical mechanism of these two systems may be not only interesting but will facilitate materially in the interpretation of their phenomena, both normal and pathological. The general anatomy of the cerebellum gives rise to little conjecture, but it is in the arrangement of the conducting paths and their central nuclei that the difference of opinion generally lies. Even some prominent otologists consider the cerebellum as the center of labyrinthine impulses. Neither will pathology nor physiological experimentation verify the conception.

The cerebellum has connections with other nervous mechanisms by means of three cerebellar peduncles, inferior, middle and superior. The inferior is almost wholly afferent, the medium

being entirely afferent and the superior being wholly efferent. The afferent fibers terminate within the cerebellum, where the efferent take their origin, terminating in some remote part, either within the cerebellum itself or in other centers. The inferior cerebellar peduncular fibers originate in the spinal cord, medulla and bulb, those from the medium bundle have origin in the pons. The cerebellum by means of its superior bundle has relations in contralateral with the cord and cerebrum. The efferent fibers have their origin in the nuclei of both the lateral lobes of the cerebellum and the vermis. These centers establish connections with the cerebellar cortex by projection fibers. According to Clark, Horsely and others, the anatomical arrangement establishing relationship between the vestibular nuclei and those in the cerebellum is rather unique. The projection fibers of the vermis are destined for the nucleus of the tegmentum in particular, while those of the lateral lobes are projected to the dentate nuclei. Again fibers from the cord and medulla are projected to the vermis and those from the medium cerebellar peduncle are received by the lateral lobes, making a connection with the cerebral cortex. Thus Clark and Horsely consider these arrangements as two systems, spino-cerebellar and the cerebro-cerebellar.

The fibers of the vestibular nerves terminate not in the cerebellum as some suppose but in three nuclei in the medulla. The excitations or impulses of the labyrinth are constantly flowing to the triangular auditory nucleus and the nuclei of Bechterew and Deiters from which they are reflected to the muscles, giving them tone. Many eminent physiologists maintain from observing experimental and secondary degenerations that very few or no fibers are destined from the vestibular nuclei to those in the cerebellum, hence the impulses from the labyrinth can not be stored in the cerebellum. On the other hand, however, there are fibers, the majority being direct, whose origin is in the cerebellar nuclei, that transmit excitations to the nuclei of Deiters-Bechterew. These centers receive excitations from two sources. Consequently both the labyrinth and the cerebellum may excite the vestibular nuclei in the medulla. Accordingly the labyrinth can not send its impulses to the centers by the intermediation of the cerebellum. By the cerebello-vestibular bundle the vermis is quite

intimately associated with the labyrinth, both anatomically and physiologically. Many of the connecting fibers being crossed, each half of the cerebellum bears associative relations with both, vestibular roots, the preferential distribution being for the homolateral side. The two systems, the labyrinthine and cerebellar, augment each other in maintaining tonicity. Thus it is evident that a lesion of one gives rise to phenomena quite analogous to those resulting from a disease or an anomaly in the other. The symptoms, however, are not identical, for the excitations are necessarily different. It is the vermis in particular that is in intimate physiological relation with the vestibular apparatus. Of course the nervous flux from the tegmentum of the vermis is not of the same nature as that from the labyrinth. The fibers also differ in their relation to the vestibular nuclei. The phenomena consequently vary.

To consider further the analogies and differences as to the labyrinthine and cerebellar activities it is essential to compare the functional activities of each system. The estimation of the relation of the cerebellum to sensibility is quite diversified, results varying with the author, his method and material. Undoubtedly clinical observations furnish the most reliable information, especially in cases of atrophy. These in connection with the anatomical mechanism referred to above do not warrant the thought that the cerebellum is the seat or storehouse for labyrinthine impressions. Again cerebellar cases do not present any anomalies in compensatory reaction of eyes and head. The perception of movements during rotation, for example, in a centrifugal appliance is intact in these cases. While many researchers lean to the view that the muscular sense has its seat in the cerebellum, yet this has not been successfully demonstrated by proper cases. On the contrary its absence is the rule in pure cerebellar cases. The organic functions are likewise separated from the cerebellum. In fact the anomalies in cerebellar cases consist in disturbances of mobility and muscular tonus.

The cerebellum almost wholly maintains homolateral relations with the musculature of the body. The falls, disturbances in gait and station, the want of association of muscle groups, the translations of rotary movements, the disturbances in equilibrium and the incoordinations

are interpreted as disorders in tonicity and motility rather than anomalies in sensibility. Movements are conserved and their direction preserved. It is generally admitted that the incoordination of movement does not involve direction, orientation to the object being intact. There is a lack of proportion in the elements of motion, the measure of movement being disordered. This is called by some authors dysmetria. Movements are more or less isolated, association as to grouping of the various muscle systems being wanting or at least diminished. Babinski calls this asynergy. This largely explains the loss of station, the inability to perform complicated acts. On account of asynergy the cerebellar case meets with great difficulty in ascending or descending a flight of stairs and in effecting muscular adaptations for the maintenance of attitude and station. There is inability to combine simple movements for definite acts. Another disorder is a tremor which is absent at repose. This phenomenon is rather peculiar inasmuch as it is composed of a series of contractions and recontractions according to many physiologists. In short, the fundamental symptoms of cerebellar disease are disequilibrium, dysmetria, hypotonus, asynergy and tremor or discontinuity. In other words, the main phenomena are concerned in the matter of disturbances in motility. The cerebellum increases the duration of contraction and of tonicity. It converts clonism into tonism and effects the measure of movement. The tremor occurs under two conditions; at the execution of voluntary motion and during maintenance of attitude. Tremor is greatest at beginning of movement—done in stages, so to speak. The movements in cerebellar disease are slow for they are willed to oversee movement and resist discontinuity and dysmetria. In slowly developing disease, like atrophy for example, the movement can quite effectively resist disequilibrium. Disequilibrium depends upon loss of tonic action, hypotonus, dysmetria and asynergy. The cerebellum registers peripheral and central excitations and impulses, reacting upon them, and makes use of the impulses from the labyrinth for the purpose of regulating the attitude of head in space. It is the seat of reactions as applied to equilibration, automatic and voluntary acts.

It is a noticeable fact that the phenomena of cerebellar disorder become exaggerated in the

event that the labyrinth is also afflicted. Likewise symptoms of a diseased labyrinth become augmented when complicated by a deranged cerebellar function, suggesting an interrelationship in both normal and abnormal activity.

While in labyrinthine disease the phenomena are comparable to those observed in disorders of the cerebellum, yet the analogy is not so close but that some differences may be observed. Labyrinthine cases present a marked diminution in muscular energy and tonicity. Both hypotonus and loss of energy are much greater than in cerebellar disease. Disturbances in equilibration are quite characteristic and occur early. There are oscillations of the head and rotary motion, especially marked in bilateral lesions, the gait being uncertain and the base of support enlarged. These movements are more or less isolated, not forming an organized systematic group as in disturbance of the cerebellum. If the amplitude of the oscillations of the head is great, the gait is zigzag or wavy. The labyrinth gives the individual his position in space. When there is a break in the vestibular mechanism, one loses perception of attitude and of progression, the oscillations of the head disturbing the equilibrium. Disequilibrium is exaggerated by variations in position of the head. In other words, abnormal attitudes of the head result from labyrinthine disturbance, hence disorientation of the head produces disorders of equilibrium. In normal, or even in cerebellar cases, appropriate reactions are made to resist disturbance in balance, but in vestibular cases there is no resistance to propulsion or lateropulsion, no resistance is offered to falls. There is no reaction to an inclined plane or a moving surface. These individuals can not perceive movements of rotation about a longitudinal axis. Vestibular cases and many deaf mutes, when rapidly rotated in a longitudinal axis, are not affected with vertigo. There is no reaction to such movements. Cerebellar cases react appropriately. This sustains the thought that the cerebellum is not the seat of perception for attitudes. In suppression of vestibular function the movements requiring precision are those mostly affected. In a loss of muscle tonus there is correspondingly a diminution in muscular sense, hence movements lose their potentiality and precision. The Romberg symptom is the rule. The ataxia is not the same in vestibular

and cerebellar cases. The former is characterized by disorientation of attitude and the Romberg symptom. In the cerebellar ataxia direction or orientation of movement is preserved. Sensibility is undisturbed. There is a reaction to propulsion. The Romberg phenomenon is absent.

The phenomena of the two systems are illustrated by the following cases. They are selected for having few complications. On account of space only mere abstracts of the main points in the clinical and pathological records are presented.

Case 1. Age 30.

History: Little is known regarding this man's relatives except that he has one brother insane. Patient's own history is negative. Has never been very successful in a financial way or in business transactions. In January, 1911, he became somewhat indifferent and depressed, also he was periodically absent-minded. Subsequent to this time had many attacks of depression. Two months prior to admission became quite feeble. He had considerable headache and fever for a short time. While confined to bed had very many depressed attacks and confused periods, also had attacks of vomiting and severe headache. Was admitted to the Cherokee State Hospital August 3, 1911.

Mental State on Admission: Patient is somewhat confused. He is depressed, apprehensive, has hallucinations of sight and of hearing. There is some degree of mental weakness. Presents frequent changes in mood. Mental attitude is very unstable. Memory is quite poor with regard to the recent past.

Neurological Examination: There is a marked degree of exhaustion. Hypotonus is noted in the extremities, especially in the right. Large muscles are quite feeble, particularly in the lower extremities. Patient is subject to attacks of vomiting. Pupils react well to light and on accommodation. The pupillary reaction so far as the sympathetic system is concerned is absent. The deep reflexes are somewhat exaggerated. There is considerable pain in the occipital region, particularly marked in the right side. Headache is more or less persistent with periods of accession. The gait is unstable. There is some disturbance in equilibrium. Patient reels somewhat to the right. During attacks of very severe headache the head turns to the right and the eyes somewhat to the left. Is very awkward in his movements. Has a tremor of the hands when attempting to perform definite acts. There is also a tremor of the lips while speaking. The tremor is absent during repose. This tremor is also quite marked while the patient attempts to maintain his attitude. Presents no disturbance in sensation. Organic functions are intact. There is a marked neuroretinitis with some impairment in vision.

October 7. Continues to have frequent attacks of vomiting of a projectile nature. Headache is less severe.

November 1. Has made some recent improvement. This man has gained a little in strength. There is still a disturbance in reflexes. Headache is more or less persistent.

December 1. Headache is unusually severe, particularly in the occipital region. Vomiting is becoming more frequent. Is subject to vertigo. Incoordination is quite marked. Patient presents a reeling gait. Reels usually to the right, occasionally to the left. Disturbance in equilibrium is becoming very marked, especially in the lower extremities. Tremor is noted when the individual attempts to maintain his attitude or to perform definite acts. In the act of walking the body is curved with its concavity towards the right. The head is frequently turned to the right and the eyes to the left. While in reclining position many movements are natural.

January 1, 1912. Continues to have frequent attacks of vomiting. Headache is becoming more severe and his gait more unstable. Has many retinal hemorrhages. Recently has been having a few convulsions.

February 1. Eyesight is greatly impaired. Headache is still persistent. This patient frequently has oscillation of the head. Has lost his perception as to the attitude of his head in space. There is nystagmus. Hypotonus is rapidly progressing, especially on the left. There is marked mental weakness which is rapidly progressing.

March 1. Dementia is becoming very marked. Continues to have convulsions of a tonic character. Reflexes are still exaggerated. There is apparently some disturbance in the muscular sense. Frequently loses the perception of the movements of rotation. Association of muscle groups is considerably impaired; in other words, there is marked disturbance in muscular synergy.

April 1. Has recently lost considerably in strength. Romberg symptom is present. Eyesight is becoming more impaired. Continues to have oscillation of the head and nystagmus. Offers very little resistance to propulsion or lateropulsion. There is considerable defect in hearing, particularly in the right. Has lost to a large extent his position in space. When attempting to walk he immediately falls into a heap, offering no resistance or reaction to the loss of equilibrium. Headache is becoming more severe and convulsions rather more frequent. Following the convulsions has areas of hyperesthesia of the back and chest.

April 16. Is extremely confused today and somewhat stuporous.

April 17. Died suddenly today during an attack of dyspnea.

Post Mortem: There is no evidence of meningitis. The cerebrospinal fluid is increased in amount. A large tumor mass a little over three centimeters in diameter is noted in the right cerebellar hemisphere. This tumor is of the nature of a glioma with cystic degeneration. The tumor formation invades somewhat the vermis. There is some evidence of compres-

sion made on the structures of the brain stem, especially the pons and the eighth nerve.

Case 2. Age 67.

History: No information is obtained regarding this man's past. He was admitted to the Cherokee State Hospital December 4, 1913, after being picked up by the officers in one of the neighboring counties. He was a perfect stranger to the parties who put him under arrest. When he entered the hospital he was quite confused and demented. His statements regarding his past life were absolutely unreliable.

Mental State on Admission: On admission is somewhat childish. There is some confusion. His memory is greatly impaired. Has delusions of an exalted character. Mental weakness is quite marked. Has absolutely no insight with reference to his dementia. Patient is somewhat incoherent in thought. He repeats syllables and words. There is some verbigeration.

Neurological Examination: There is marked diminution of muscular energy and tonus. There is decided ataxia of both upper and lower extremities. Incoordination is more marked in the upper extremities than in the lower. This is particularly marked in the left side. Has marked oscillations of the head. Intention tremor is very marked. This tremor is absent at repose. Tremor becomes pronounced when patient attempts to establish his equilibrium. His movements are very slow. When he performs movements rather rapidly tremor becomes extremely marked. Deep reflexes are exaggerated. There is a slight ankle clonus on the left side. Pupils are not equal. The right pupil is a little smaller than the left. Pupillary reflex is somewhat sluggish. Vision is greatly impaired. There is marked neuroretinitis. Patient complains of headache quite frequently. Cutaneous sensibility is unimpaired. Patient is very awkward in his movements. Fatigue is induced very readily. Has a speech defect. Speech is scanning. He has difficulty in pronouncing test words. The lips become tremulous when he attempts to articulate. There is a slight paretic condition of the muscles on the right side of the face.

January 1, 1914. Patient is more weak-minded than he was a month ago. Is inclined to be somewhat careless in his habits. Lately has gained in weight, yet there has been no gain in strength. Continues to have disturbance in gait and in station.

February 1. At this time there is marked incoordination. Oscillations of the head are more marked. Has lost his perception with reference to space. There is some defect in the muscular sense. The gait is zig-zag. Patient occasionally reels to the right and to left. There is a nystagmus. Speech defect is becoming more pronounced.

February 15. Confined to bed today on account of marked weakness of the extremities. Hypotonus is becoming quite pronounced. Makes very little attempt to resist falls. Is now subject to convulsive attacks which are of a tonic nature.

February 25. Had several convulsions today. They

were all tonic in character. The head turns invariably to the right, the eyes to the left. Hearing in the right ear is completely lost. The paretic condition of the right facial muscles has recently become more marked. There has been a persistent occipital headache for the past two weeks. Vision has failed very markedly lately. Individual is in a somewhat stuporous condition.

February 27. Has considerable elevation of temperature. Is not able to swallow today. Died Feb. 28.

Post Mortem: There is some atrophy of the cerebral cortex. The lateral ventricles are a little enlarged. There is an increase of cerebrospinal fluid. A tumor mass about two centimeters in diameter is observed in the right cerebellar hemisphere involving the eighth nerve and pressing upon the seventh. The eighth nerve is completely involved in the tumor formation. This tumor is of the nature of a fibroma. There is an area of right cerebellar hemorrhage which is recent. There are hemorrhagic areas of destruction in the left temporal and frontal regions extending into the cortex. These destructive areas are not very recent. Arteriosclerosis is noted in both the cerebellum and the cerebrum. The sclerosis is particularly marked in the basilar artery. Atrophy is particularly marked in the frontal lobes.

Case 3. Age 28.

History: Admitted to the Cherokee State Hospital May 19, 1913. Family history is negative with the exception of father and one brother intemperate and one brother syphilitic. Patient's history is negative. Was considered a man of ordinary mentality until about a year ago. At that time he became somewhat restless, indifferent and was incapable of following any useful occupation. In January, 1913, had periodic headaches with periods of confusion. In February of the same year had considerable difficulty in walking, in speech and in station. There was some incoordination of the muscles. Became more confused than usual at that time.

Mental State on Admission: On admission is found to be somewhat demented and a little confused. Patient, however, is fairly well oriented. There is some memory defect for the recent past. Has difficulty in entering into conversation owing to the defect in the power of attention and muscular incoordination. His speech is rather unusual, inasmuch as it is of an explosive character. Has a tendency to repeat words and sentences. Repetition is particularly concerned with the last spoken word. He frequently repeats the question, or which is more common, the latter part of the question before attempting to give the answer. If the question is a long sentence he reacts before the question is completed. This reaction is rather spontaneous. This individual occasionally reacts to sounds without any idea as to the nature of the question asked. There is some defect in the power of comprehension, especially with reference to abstract ideas. Patient is not in any way depressed. He realizes his physical infirmity, yet this condition causes him no concern. He is very hope-

ful and of an optimistic turn of mind. Makes frequent attempts to reestablish his equilibrium.

Neurological Examination: There is very marked incoordination of the muscles of the extremities, lips and other muscles of phonation. There is marked defect in equilibrium. Patient has considerable difficulty in maintaining his station. Has a marked tremor, all of the muscles being overactive, especially the movements concerned in speech and in the maintenance of equilibrium. Movements are very slow. When he attempts to perform definite acts rapidly there is an exceedingly marked incoordination, but if these movements are performed slowly incoordination is considerably less. Tremor is particularly characterized by stages. Movements are performed in a series of contractions and recontractions. These are to a large extent overcome when the individual attempts to perform movements with deliberation. There is marked speech defect. The gait is zigzag or wavy. Patient reels from right to left. The reeling is mostly to the left. Tremor is absent during repose. While the patient is lying in bed there is no tremor. In the lying position many movements can be performed quite readily without manifesting any degree of incoordination, but the moment he takes the upright position the incoordination becomes extreme. Patient has not lost his conception of space. Dysmetria, or the loss of measure of movement, is particularly striking. The association of muscle groups is greatly impaired; in other words, the defect of synergy is quite pronounced. This man can quite readily maintain his station if he obtains some support or if he holds to a fixed object. There is very little hypotonus. Muscular energy is quite good. Patient is well nourished. The deep reflexes are somewhat exaggerated, especially on the left side of the body. There is some defect in eyesight. Retinal hemorrhages are noted in each eye. There is a neuroretinitis. This individual has periodic attacks of headache. There is nothing definite in regard to the location. Frequently the pain is located in the occipital region, occasionally in the frontal region and elsewhere. Has no disturbance with cutaneous sensibility or with the muscular sense. There is a slight nystagmus.

June 1. This patient has been confined to bed since admission. There has been some improvement in his mental state since coming to the hospital. Incoordination is less marked. There is yet considerable impairment in equilibration.

July 15. Has made very marked improvement since June 1. This patient has been permitted to be dressed during the past three days. He walks about the ward without being supported. Occasionally falls to one or the other side. Gait is still zigzag. There has been recently very marked mental improvement. Incoordination in the upper extremities is less marked than noted the month previous.

September 1. Is not confined to bed during the day time. He walks about the ward and goes to the dining room. Feeds himself. There is still marked

incoordination with disturbance in equilibrium. When his movements are performed slowly many acts can be quite well performed. While the patient is standing unsupported or walking without any assistance, if his attention is then distracted by somebody calling his name, for example, he immediately falls to the floor. This condition is invariably induced when his attention is distracted. This patient gives a great deal of his attention to attempts in maintaining his station and reestablishing his equilibrium.

November 1. During the past month has failed. Has lost some in weight and in energy. Incoordination has become more marked of late. Dementia has progressed during the past two months.

January 1, 1914. Mental enfeeblement continues to progress. This patient when attempting to walk about gives his entire attention to the maintenance of station. He also gives a great deal of his attention in attempts to resist incoordination of ordinary movements. He is again confined to bed owing to the fact that he is incapable of walking without assistance. Eyesight is failing rapidly. There are many retinal hemorrhages. Optic atrophy is noted.

April 6. Today had frequent attacks of restlessness and convulsions of a tonic nature. Has hallucinations of sight and of hearing. At this time patient loses his perception with reference to his position in space. Nystagmus is very marked. There is some elevation of temperature. Oscillations of the head are quite pronounced. Patient is very confused.

April 15. There has been some improvement in this man's condition within the past week. He is less confused. Has better control of his movements. Oscillations of the head are less pronounced. There is very little disturbance in sensation or in organic functions.

June 1. This patient has made very marked improvement within the past month. He still has incoordination of movements and there is considerable disturbance in equilibrium. Can perform many movements fairly well if they are performed slowly.

July 1. This individual is quiet, oriented and fairly clear mentally, but there is considerable mental weakness. While in a condition of repose there is no tremor. Tremor becomes quite marked when he rapidly performs certain acts and when he attempts to walk. The Romberg symptom has never been present.

Cases 1 and 2 are particularly interesting as presenting symptoms of both cerebellar and vestibular disturbances. Case 1 did not at the time of first examination offer any evidence of labyrinthine disorder. Later in the course not only were the cerebellar phenomena augmented, but symptoms arose indicating embarrassment to the vestibular nerve from compression. Case 2 from the time of first observation presented evidences of involvement of both the cerebellum and eighth nerve by the tumor formation.

Furthermore there were hemorrhagic areas in the left temporal and frontal regions. These findings are very significant. This case was unable to effect restitution or to reestablish equilibration even to a slight degree, owing to a deranged function of the vestibular, cerebellar and cerebral systems, the main organ to effect substitution not being intact. It is a recognized observation by physiologists that the cerebellar function can not be restored by substitution in the event of disorders in the labyrinth and the contralateral cerebral hemisphere.

In Case 3 may be illustrated typical cerebellar anomalies, vestibular disorder being suspected only a few times, perhaps from compression. The progress of the disease was rapid for a while prior to admission to the hospital. For several months thereafter there was apparently an arrest in the diseased process with a marked restoration of function undoubtedly from substitution. This was at the expense of psychic formations, a great deal of attention being required to combat incoordinate movements. Thus the cerebellum may be considered as a regulator of movement and an inhibiting mechanism for cerebral phenomena, clonism being transformed into tonism. The cerebellum likewise inhibits or regulates the nervous flux from the labyrinth. Both cerebellum and the vestibular apparatus are concerned in equilibration.

SPURIOUS AND GENUINE TREATMENT OF PSYCHOSES, ILLUSTRATED BY CASES.

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Medical men, particularly as regards mental medicine, are at a disadvantage in meeting the wiles of charlatanry; for they cannot make an appeal so sensational as that of the mystery mongers. The hold which surgery has taken on the public mind is partly perhaps because of the very sensationalism of its appeal; and such recent medical agents as salvarsan and radium have gained much renown from the exaggerated emphasis given them by journalism.

At the time when psychotherapy was equivalent

to hypnotism, similar exaggerated claims were made regarding it. Still more recently the meretriciously presented observations and reflections about multiple personality had much vogue; and even now the schematised phantasies of some psychoanalysts have been exploited sensationally before the public.

But the appeal of all these is to the love of the mysterious, an aid denied to the psychotherapy now presented. This latter has no attraction for lovers of the marvelous, for it is merely an enlightened good sense without any mystery; indeed, in its apparent simplicity, it illustrates the attitude of the questioner who, upon being told by the painter of a picture he admired, "One simply mixes the paints and puts them on with a brush," declared contemptuously, "Oh, is that all?" The illustration is an accurate one, for to play on the mind, which may seem so easy to the crude or unobservant because of the concealment of its art, requires much greater skill than the admittedly difficult art of playing the flute, as Shakespeare so penetratingly made Hamlet remark.

That medical men are so obtuse regarding the need for technique in treating patients with psychological disorders, permits them to attempt the treatment of these difficult cases, a thing they would never try without special training where for example, the eye, major surgery or orthopaedics was concerned. The result is that the many patients not benefitted cast discredit upon medicine, and become a derelict herd upon which fatten the exponents of systems of incorrect thought, weird manipulations and semi-religious fanaticisms. It is high time that it be recognized that the graver "neuroses" are just as much in need of special skill as are obscure medical cases or those requiring major surgery. In the same way, just as it is recognized that a man without special skill not only obstructs but is a dangerous assistant in the operating room or laboratory, so it must be recognized that the endeavors of the family physician, however well-meaning or intelligent, unless he is specially trained, may seriously incommode the progress of his patient; for he can hardly help interfering with the special technique of the psychotherapist.

Two common errors. Unsound psychotherapy by medical men commonly shows itself

either in attempts at suggestion, which are often merely an evasive jollyng, or in the relegating of a patient to a sanitarium for nervous disorders. These practices are most reprehensible; for in every few of such sanitariums are there men with sufficient neurological training or insight concerning psychoneuroses; and to attempt any therapeusis without some etiological diagnosis is the haphazard with which we so often reproach charlatans.

What should we think of the physician who gave morphin for a pain in the abdomen, regardless of the possibility of acute inflammation requiring surgery? Yet there is no difference in principle between such reprehensible procedure and the common negligence which attempts to remove by hypnotic or waking suggestion symptoms concerning the genesis of which the operator is completely in ignorance.

It is time that medical men realize that only a very thorough neurological training can in many instances furnish the means even for a diagnosis between organic and functional disease. (See author's "Diagnoses of functional from organic Motor Disabilities," Archives of Diagnoses, N. Y., 1908-9; and "The sensibility in Disease." Amer. Jour. Med. Sc. 1910.) And it is hardly known at all that functional nervous disease should never be diagnosed by exclusion, but by its genetic factors, or at least by a detection of its mechanism. (This is a term used in psychopathology to denote the train of ideas and emotions which through a series of associations have modified the psychic re-activity of the patient.) To do this requires very special training.

The sanitarium fetisch. A case illustrating the folly of sending a patient to an institution, as well as gross failure to detect the mechanism of a profound melancholic reaction, was that of a well educated man in the thirties whom I saw in England last August in St. Luke's Hospital for the Insane, where he was regarded as a demerit. The patient had been certified as a hopeless lunatic, and had been incarcerated for some years, so that he was slowly perishing of inanition. He had within four years consulted several distinguished neurologists; and although none made a diagnosis, all had regarded the case as hopeless. Although the man persistently refused food and could not be kept clean and his dejection was so profound that it required im-

measurable finesse to get "en rapport" with him, twenty minutes served to find out that his condition was purely psychogenetic. It was merely the result of intense depression caused through his failure to accomplish a most ambitious task in literary psychology, for which he was ill-fitted in training and intellect. An exaggerated slough of despond from discouragement would describe the mechanism in popular language. Thanks to the persistence of a faithful sister who had consulted me, proper measures were instituted in spite of the scepticism of others, and the New Year brought me word that the patient had shaken off his melancholia and is well.

Such reproach to medicine is I fear not rare; and I am sorry to say that few sanitariums afford much chance that the mechanism of a psychoneurosis would be detected and the patient placed on the sure road to recovery. Another pregnant illustration will be found towards the end of this article.

As to suggestion. The man on the street, and as regards morbid psychology few medical men are yet in a better position, if he ever thinks about it at all, probably believes that suggestion is either "claptrap and twaddle" or something marvelous and mystical, or like the old electric fluid of our fathers, almost like something you could put in a bottle and take before going to bed. Even physicians have been heard to speak of "giving a little suggestion." (Actually, suggestion is merely the process of getting an idea accepted by the mind of the subject by slipping it, as it were, past the guard of his attention or criticism.) This may be done in various ways. For instance, it may be done indirectly when the subject's attention is lulled, as by a political harangue or theological exordium. It is not a desirable method of therapy generally speaking.

Ecclesiastical suggestion. The faith-healing cults really act by suggesting the disappearance of inconveniences. Each of them of course may remove symptoms, but only in cases where there is a false idea at the root of the trouble, because each, if successful, removes the false idea.

The very distinct advantage, however, which one of these cults has over many other methods of suggestion, is that its teachings are positive, though they appear negative. It not only removes a false idea but it fills up the void again with a positive belief that all is well. This is ob-

viously more efficacious than physicians' methods which not only concentrate attention upon the physical aspect of the disorder but merely aim at the removal without substitution of the false idea. Suggestive power of healing cults is of course, further tremendously strengthened by the religious aspect. The fault of these cults' procedures in their application to nervous disorders, is that they substitute for the original distorted thinking or false idea, an equally false, unreasoning and treacherous optimism.

Suicide from the effects of a "Faith" cure. For example, a prominent business man in one of the larger southern cities was attacked recently by the condition which precedes and leads to arteriosclerosis. He was ordered certain exercises and a dietary, but preferred to adopt Christian Science. He believed himself to be cured, being possessed by the idea that "God is All; God is Good; All is Good"; hence his natural business caution was replaced by an unreasoning and happy-go-lucky optimism. Result rash speculation, financial ruin and suicide in six months. Of course, there are many suicides of persons who have not embraced faith healing cults, and one might argue that this man might have committed suicide in any case. But I wish to point out that suicides can now be prevented by modern psychopathological methods¹ and that the inefficacy of the procedure employed by this man is clearly shown by the considerations of cases in this article. His blind faith was tantamount to hiding his head from calamity, so that when he could no longer hide from it, it overwhelmed him. The rational procedure would have fitted his psyche to prevent or avoid the catastrophe which he had seen months before.²

Need of neurological training in psychotherapy. Contrast the following case as illustrating the imperative necessity of medical training in caring for nervous disturbances apparently entirely "mental."

An engineer aged 38 (referred by Dr. Atkinson) a powerful, energetic man, formerly accustomed to work, began to be unable to concentrate upon the office work to which he had confined himself for over three months. Previous to this he had been much less active, and latterly he had been very much worried by an official inquiry into a contract for which he had

been mainly responsible. For no cause known to him he feels a dread in the mornings: and an indecision in business matters is now realized to have been present several months. There was no syphilis nor any other organic disease.

He had been improved by three weeks in the woods during which he was very somnolent, but relapsed at once upon return, and could hardly stand his morning suffering. There was no insomnia.

Physical examination. The reflexes were rather active, but there was no other objective change in the lower neurones; there was no *amensia*; the sexual hygiene was normal. He was much depressed and longed to go away from it all for a year, which he could well afford to do.

Treatment. He was sent for three weeks into the mountains. This time he fully recovered *on account of the light diet which he took*. Breakfast and supper were fruit and milk, and his midday dinner was vegetables and six ounces of meat; after a few days cereals were added morning and night. He has remained well for three years, having been taught proper hygiene.

The futility of empirical suggestion. Suggestion of any kind is a very crude measure at best and does nothing to build up self-mastery. It weakens rather than strengthens the resistance to incoming ideas or habits in the future. It makes one dependent upon the behest of another. It is a morphin of the soul. Not only so, but it is inadequate to remove symptoms when compared with the superior analytic and synthetic methods we now possess. Here is a case which shows inadequacy of crude "suggestion."

Cure of a tic where suggestion had failed. A boy from North Carolina was referred to me by Dr. T. C. Martin, suffering from a "barking and bowing" tic. When he sat down he would utter a series of barks and at the same time the trunk would double up. The attacks had begun suddenly three months before in the middle of the night after he had eaten sandwiches sent by his parents from Washington and had been thinking despondently about how nice it would be to be back there. He had also been thinking a good deal about his "inside," for which he had been much doctored. This patient had been treated by electricity, which he was assured and no doubt believed, would cure his trouble; then by direct suggestion, and finally by the powerful suggestion of the strongest medicine known, a drug obtained from some remote country and guaranteed to cure. All these methods proved utter failures.

Treatment. Because there was not time, there was no attempt to delve completely into the mental life of the patient, but it was deemed sufficient to rectify the physical manifestation of his mental disorder, whatever its precise nature might have been. And note well this was done by psychophysiological means. There was no attempt (as had been made by the pre-

1. See author "On the Prevention of Suicide," *American Journal of Insanity*, October, 1914.

2. See author *Monthly Cyclopaedia*, 1909.

vious suggestioners) to bludgeon in, by suggestion, a sort of panacea, a cure-all, like the belief of the Christian Scientists, and thus reverse the whole trend of his mentality without the least attempt to discover either what the matter was or how it arose. This patient was placed in a reclining chair. The muscles of the abdomen were pointed out and their activities explained to him, and he was taught how to voluntarily move them and by doing so counteract the spasms which were making his life unbearable. Two days' drill sufficed and the patient was and still remains cured.

Efficacious medical healing of neuroses—psychotherapy. Opposed to the irrational and haphazard methods we have just examined is the real psychotherapy. It is dependent neither upon "suggestion" (though it rarely avails itself of this method as a short cut, to save time, in selected cases), nor upon morbid anatomy (though the diagnostic knowledge of this branch of medicine is a requisite to its efficient practice). Neither does it rely upon the domination of the weak and ailing by a stronger will. And the mere development of confidence in the doctor is not its secret. If any proof of this last fact were needed, I could cite very many cases where both doctor and patient have wondered at the failure in spite of complete faith in the family doctor. The North Carolina boy case above cited was just such an instance.

The real psychotherapy is rather a method of scientific psychoanalysis and synthesis, a dissection of the mental tendencies until the real root of the fault is detected, followed by a putting of them together pointing in a new direction, so to speak, and keeping them pointed in this healthy direction by frequent adjustment of vacillating tendencies, and seeing that the patient's own will is used in the effort. It takes time and skill, as well as knowledge of psychopathology. Its rationale is illustrated by the cases which follow: The first of these shows the effect of a correct analysis.

Cure of chronic fear. A professional man, 28 years old, gradually withdrew himself from society and friends, later denying himself to all but one. He abandoned work and began to neglect food. At night he would pace the floor for hours. He looked haunted and ashamed. He twice took steps towards suicide. There is no need to enlarge upon a picture so familiar. Suffice it to say he is cured.

He was most distrustful of the possibility of cure as he had six months previously visited specialists who had failed to benefit him. As he described it, their procedure seemed to have been somewhat crude at-

tempts at hypnosis with suggestive assertions denying his symptoms and their cause, which he had declared to be a state of fear.

It was mainly in the presence of other people that his fear came over him; and he was much ashamed all the time because of this fear. It was quite different from the timidity of adolescence. As a small boy he was noted for his bravery, and would fight against the boys of the neighborhood. The cause of his fear was unknown to him; and he believed it was hereditary, as one of his brothers was worse than himself and had become a wanderer whose whereabouts would be unknown for months at a time. The patient had been fighting against this fear at least since his college days; he had tried playing football to make him courageous, but without effect; and so when he graduated, he plunged into a camp of rough lumber men and took his part as a laborer with the rest. Six months of this gave him still greater admiration for courage, but in no wise improved his own. He then returned to civilization and plunged into studies and office work, hoping to attenuate the fear which gripped him; but instead of this he gradually lost mastery, and after six years of struggle fell into the state in which he came to me.

Genesis. After a physical examination which disclosed no important features except great loss of weight and a high degree of erythema, psychological exploration was begun by my stating to him that either he was, as he believed, a physical degenerate or there was some psychological cause for his fear; in which latter case the discovery of that cause might lead to the finding of a means for its removal and the ending of his fears. He was then told to search his memory for fear-bearing experiences in early life, but could think of none. Then period by period running back from his college days had attention turned upon it, until the patient recollected to have been morbidly fearful at each time, until finally he declared that he had always been afraid and must be therefore a physical degenerate. He was then asked what incidents of his early childhood had particularly frightened him, and at first recollected nothing. Wild animals, darkness, fire and people were each in turn presented as possible factors. But it was not until the remembrance of a near relative was recalled that the key of the situation was found. It seemed that this individual's ideal of up-bringing was the hardening process, and that the theory he held was that every boy's moral welfare required the knowledge of fear. These two objects were combined in such a procedure as throwing the lads into the water while they were unable to swim, to fish them out only when they were going down almost breathless. In winter, a favorite method was to throw the boys while asleep in the morning into a bank of snow and snowball them home to the door. Another procedure was to chase the children with a stockwhip from the front door to a tree in the distance. The result of all this was not hardening, but a breeding of chronic fear in these two lads. The patient's recollection of these performances

reached back to the age of 4. But he had completely put out of his mind these incidents and indeed, failed to take into consideration his cowardice as a young boy, believing it to have originated in the high school.

Treatment. When the source of the fear was discovered the patient declared that he did not see how this knowledge would benefit him. It was then explained to him that his fear was merely a psychical habit and not an instinctive reaction. He was told that habits can be reformed if intelligent effort is employed, but that he was in no condition to begin reformation of habit until he had slept and eaten regularly for some days. When he objected that he had long since given up narcotics, as he was worse than before taking them, he was told that I never found it necessary to give narcotics, that I should induce sleep without them and that after this he would be less unwilling to eat.

Accordingly, treatment was begun by my visiting him in bed and hypnotising him into sleep. He slept 18 hours, then carried out the dinner program we had previously arranged. Hypnosis was performed three times in all, but not on consecutive nights. In the meantime, re-education was begun.

To make a long story short, this consisted of a reconstruction of the fear situation of his infancy, and the pointing out of the non-necessity of the fear sequence which had occurred and the insistence of the possibility of reconstruction of his reactions towards himself and the world. Numerous instances of the dependence of emotion upon ideas ("Role of affectivity and Intellect in Traumatic Hysteria," Williams, in *Journal of Abnormal Psychology*, June, 1910), were given; and he was instructed concerning reconditioning the reflexes as investigated by Pawlow and Crile; and he was shown the physiological perniciousness of the fear impulse.

He struggled with the situation bravely; but I left him alone after what proved too short a period, namely four days, and he lost courage and began to relapse until a friend drew my attention to the situation after a week. We then resumed relations, as he felt the need of help. After four more days of re-education, the tide turned and he obtained control of his fear.

He celebrated the occasion by an impressionist account of his situation from which I extract what follows:

"I've won! I've licked him! I've driven away the beast that was driving me mad. As soon as I knew just what he was, and why he came, I poked him with my finger, and he busted. He's not gone entirely, he's crouched growling nearby, waiting to jump on me again, and occasionally he gives me a twinge, such as some men get when passing a looking glass. I laugh at it. I'm on my back no longer, I'm fighting and my battle's all but won. I wrote my last letter on Friday. Yesterday I had fun. I got up singing in the morning, dressed carefully and went down town. I ate my breakfast slowly, but made the waiter scurry. A week ago I slunk into a restaurant, be-

cause I was fearfully hungry, unshaven, unshorn, and unkempt, and the waiters all laughed at me, and I hurriedly gobbled my food and crept trembling out again. I went back there yesterday and bullied the whole crowd. One of them came up grinning, and I looked him in the eye, and the grin changed to a smirk, I kept him standing waiting, while I read the menu through and I said, "Bring me this and this and that—and Waitah, hurry! and don't you dare to not do so always." Ten days ago I sneaked up to the Sherman statue by moonlight and looked at the statue of a soldier, longingly and wondered who he could be. Yesterday I walked up to him laughing, and wished I could shake his hands."

Reaction. It is over two years now since the above account was written and the patient is now successfully practicing his profession and is still happy, not to say buoyant. At first indeed, he was so expansive that I suspected a periodic psychosis in which my intervention was a mere coincidence; but that that is not the case seems to be shown by the gradual subsidence of the extravagant behavior which the patient at first showed. Besides, another instance of still greater disturbance of this kind recently came to my attention wherein no such doubt could arise. It was that of a woman, aged 28 years, whose vision was restored by removal of congenital cataract. Dr. Reid Russell of Ashville, the operator, informed me that the patient's reaction was almost maniacal in her joy at her new sensations and at her unaccustomedness to the adaptations they required. So I interpret this young man's extravagance of behavior to his incapacity at first to adjust himself to the new manner of looking upon the people who surrounded him, his former ever-present dread having been displaced by a disregard almost contemptuous, with a consequent effervescence of the ego disconcerting to those who previously knew him.

Psychopathological interpretation. This case is an instance of:

1. An anxiety state induced by mechanism other than that postulated as essential by some psychoanalysts.
2. The induction of an emotional state directly from an idea.
3. The forgetting of the initial circumstances which induced the concept which governed the life so detrimentally.
4. The revelation of the initial circumstances by an analysis so elementary as to be no more than a particularly intelligent anamnesis,

in that it neutralized skepticisms and antagonisms and proceeded with patience.

5. The failure of "catharsis" per se to alleviate the condition. (A word tantamount to confession with full realization.)

6. The need of re-education, that is psychological reconditioning for the remaking of mechanism.

(The hypnosis used was merely incidental to secure sleep upon certain occasions.)

A second case is that of the North Carolina young man already described, where the inefficacy of suggestion as compared with re-educative drill is apparent.

Other cases. I have already related ten cases illustrating the rational therapy of hysteria. (Wash. Med. Annals, Jan., 1912) (Post graduate, Aug., 1912.) Some of these forcibly exemplify the failure of empirical suggestions. There should be recalled Dr. Hardin's young woman from Warrenton, where the most emphatic suggestions by a previous physician failed to influence an intolerable hyperesthesia round the knees and arms, cured in one week by exercise based upon a rational understanding of the psychophysiological mechanism of the muscular contractions which caused the pains. Some will recall Dr. Stone's case of iliopsoas spasm, which the removal of a diseased appendix failed to cure, but which was removed by two weeks of psycho-motor discipline.

It should not be necessary to again cite the striking success of rational psychotherapy in children; for the examples related last year (Wash. Med. Annals, 1913, Amer. Jour. Med. Sc. Jan., and Journal of Abnormal Psychology), where a single interview often sufficed, should be fresh in your minds. Nor should it be necessary to remind you that the psychotherapy of our day need not approach with diffidence the hitherto intractable occupational and traumatic "Neuroses"; for principles were set forth so recently as the International Congress of Hygiene, 1912, and the International Congress of Medicine, 1913. (See Transactions; also Monthly Cyclopædia, 1912.)

But I wish to supplement these cases by others exemplifying the manner of treating hysteria in an older child and of the more obstinate case of an older woman, and with two cases showing the perniciousness of unthinkingly referring to a

sanitarium a patient in so grave a contingency as the persistent attempt to commit suicide.

Hysterical night terror. A girl aged 16 years was referred by Dr. Litchfield of Pittsburg on account of great nervousness for years. She had never been regularly to school until the fall, when she had been sent to boarding school after convalescing from appendectomy, but had become so nervous that she had to return in two days. Inquiry showed that she would frequently wake in the night very much afraid unless she were soothed by someone sleeping with her; so that she could never sleep alone. Further inquiries showed that a servant had told terrifying stories to her sister as a child; the horrors this brought ran through a family of three children, but they passed away from them all except this patient. She had been much spoiled since, owing to a supposed weak heart, and had always been considered a weakly child. Her father and an aunt had been timorous as children; the later for nine years had not dared to be alone for a moment.

Examination showed feeble reflexes becoming active on re-inforcement; muscle tone fair; weight 108 lbs.; pulse 104 during examination, although patient said she was not excited. Cardiac sounds closed; chest expansion free; appetite is said to be good, with certain dislikes; walking tires her, but dancing and tennis do not. For heterophoria she was prescribed glasses, but does not use them.

Psychic functions are at first sight unimpaired except that she just wants someone with her when in bed. Her fears are either of fires or burglars, and they only occur when in bed or asleep. She whines when dreaming and wakes frightened but never screams, but clutches her companion desperately for reassurance. She is sure she wants to get rid of this trouble; she cannot remember the first occasion of fear. Noises such as creaking of floors, make her think there is someone in the house, although she knows positively there is not but cannot make herself believe it. She is ashamed of the emotion and will go to bed alone, although terrified, if there is someone else upstairs, but if not will wait until her mother comes.

She imagines a burglar might hurt her. Analysis shows that there is no definite fear of what he might do to her, but that the fear is of the unknown, and although it might help her to know it, it might be too terrible. Her agitation upon speaking of this she attributes to her shame of being "babyish." I explain there is no shame in what one cannot help, but that she cannot until an understanding is gained through analysing the situation. She is not less frightened when away from home, but any person in the room will tranquilise her fear upon waking if she can touch them. The night fear is quite different from any fears in the daytime.

After the analysis she was asked to go home and write out her impressions of the situation, which she did as follows:

"The earliest instance I can remember was about eight years ago, when my nurse sat in the next room while I went to sleep. For five or six years afterward someone was with me when I was going to sleep. If I woke up in the middle of the night—which I usually did—I would be terrified and go into mother's bed, with her, in the next room. It is only within the last few months that she has been sleeping in the same room with me the entire night. Before that I always went to bed in the room next her's, but very rarely remained there all night. I can not ever remember having the nurse put me to bed and then leaving me to go to sleep by myself. She was always in the next room. It made very little difference whether my mother, nurse or sister were with me; I preferred mother, but would have anyone rather than be alone. I was always worse in our city home than in our country home because I thought there would more likely be burglars in the city than way off in the country. I would go to sleep more quickly in the country but would always have someone with me.

"As long as I can remember I have dreaded night. I always lay awake a long time after going to bed fighting with my terror of burglars. Every sound made me think of them; and I used to hold my ears shut so that I could not hear the floors creak, and try to go to sleep that way. So when I thought of those long sleepless hours I would wish that there was no such thing as night."

Her dread is mingled with self-contempt at her "silly babyishness."

Three dreams were obtained. The first and second were of a burglar entering the window. The analysis showed only that the intruder aimed to shoot her sister who was standing up behind her; a dream of fears of elevators led to no pertinent associations.

As the dream analysis was so unfruitful, I believed it best to at once proceed to reconditioning of the psychological reactions. This was attempted in the first place by studying the child's power of understanding of what I gave her to read about the psychology of fear, and by making clear to her what she could not understand alone. In the second place she was given exercises in mental concentration, and as she became more proficient in these was urged to apply them to the study of her own feelings of nocturnal apprehensions. The principle she was made to grasp was, that fear and shame of her fears prevented her from facing and examining them, which was the essential preliminary to the understanding which would make them disappear. In ten days she returned home not yet able to sleep alone but beginning to obtain mastery. A month later her mother wrote me that she was entirely well and when she wakened in the night would quietly turn over and go to sleep without troubling anyone and was physically and in mental health better than at any time in her life.

On reading this and other cases I am dissatisfied by the baldness of the presentation but where one is performing the innumerable refinements of

analytic and synthetic psychotherapy, it is impossible to turn round and write them down, and if they could be written down, the length of the case would forbid its reading. It would be as if a surgeon in relating an operation were to write down each turning of wrist or bending of finger. Psychotherapy of the more refined sort is an art of which only the principles are practically describable, for otherwise each case would require a book.

Hysteria with obsessions following overtenseness and exhaustion and phobias of eating consequent upon gastroenterological prescriptions. I was consulted by Dr. Jackson concerning a woman, aged 31 years, having three children, one aged 6 and twins aged 4½.

After the first child was three months old, she "was unable to do anything for six months, and has never been really well since." After the twins were born she was able to do some work. She prepared the food for the twins and gave four music lessons a week. The twins were frail. Now she has been off and on in bed for the last six months. A trip to California for two months bettered her spirits, but not her physique. Now she is really dispirited for the first time, "the tension of the children" now always on her mind.

Symptoms. Chief trouble has been fatigue, but now she feels worried, cannot concentrate and is obsessed by what she calls "problems." The chief of these has to do with her diet; it arose thus: A gastrologist stuffed her and her visits to his office exhausted her and she felt scruples at not taking the diet, which began last March. She had feared to eat because it made her uncomfortable. She lost weight one week while stuffing and the doctor said "starve" for a week. Her actual diet now consists of:

Breakfast—Two eggs, four slices of bread, a cereal, no milk, because it makes gas and gives headache, weak tea, no fruit, even cooked, as it causes distension and has upset the patient since the birth of the first child, and once she threw up an orange. Breakfast, two raw eggs.

Dinner—A raw egg; no sweets because they upset. Supper, 4:30—Same.

Before Bed—Broth or raw egg.

Between meals—Broth or an egg, but this makes the patient feel nervous because she thinks she has nervous indigestion and has antipathy to eat between meals.

Appetite was always good until the last two months.

Weighted 84 pounds in 1892; now weighs 89 pounds; she used to weigh from 98 to 110 pounds.

Panics—She may get angry, but rarely and only inside, sometimes cries; becomes "tight" in the bowels, arms and legs; at least she feels so, but if aroused can think if a great effort is made.

She is angry with herself for not doing better, and cries when telling this.

She is rather hopeless at fate, but not quite for she

can laugh (does so at the whole situation while speaking of the subject.)

Tension—Has felt "tension" since the birth of the first child. She called it muscular rheumatism contracted from sitting in a porch. She feels worse when nervous or if she has anything voluntary to do.

In the abdomen there is actual "cramp," for which she asked for narcotics; *e.g.* when she lets the effort to stuff go, the tension cramp lessens. "It may cause a heart pain or a pain in the chest, and as the breath is suspended breathing makes it hurt more." Her doctor told the patient that what she thought was indigestion was really nerves, *viz.*, the feeling of the tightening of the muscles.

There was much flatulence, as it appeared to the patient; but the abdomen was actually flat and the passage of gas was slight and only followed relaxation.

She fears to eat because some things upset her, not because of the fear of indigestion now.

She always eats with a feeling of hurry, even when eating slowly. She says that even if she dawdles, she can finish a meal in 15 minutes. The patient feels muscularly weak all the time now.

Examination—Muscles extra strong.

Reflexes x x.

B.P. 116-92.

Treatment. Removal from home for two weeks, relaxation of the rigid diet without letting her know it; exercise for physical upbuild, gradual psychic hardening by performing what she found difficult. These measures carefully supervised in a few weeks enabled the patient to return to the management of her house and a happy life with husband and children. In this case the family physician ably succeeded in carrying out the disciplinary measures.

Attempted Suicide; Psychogenesis; Therapeutics. A farmer's son, aged 22 years, after some weeks of moody behavior, threw himself into a creek. He was quickly rescued by his brother, who reproached him severely. This did not deter him; for a few weeks later he swallowed laudanum. This led to his removal to a sanatorium, where after a few weeks he crushed and swallowed an electric light globe. Later, he gained access to a medicine cupboard and again swallowed laudanum. So his friends in despair brought him to a doctor friend in Washington, who immediately asked me to see him.

Examination showed no physical disorder; but I discovered that there existed a serious psychological situation, which no one had ever suspected, much less attempted to penetrate.

The boy was so ashamed of himself, although still determined to commit suicide, that it was hard from his whispered utterances to reveal the facts from the analysis of which was furnished the very simple explanation of his distressing predicament.

To state the position briefly: Upon this boy has developed since the death of his father, the management of his mother's farm. But a younger brother had succeeded in interfering a good deal with our

patient's plans, much to his mortification; and when also neighbors' meddling was acquiesced in by his mother, the situation became intolerable, as he had already failed in an attempt to work happily in another environment which he tried for over a year. So that suicide seemed the only escape. The manner in which the psychological situation was ascertained is best judged from a transcription of the questions and answers of part of the examination:

"What is the matter?"

"Stomach troubles; if I could get well I would be all right."

"Have you any pain?" "No."

"Why are you then complaining?" "Because my bowels do not work."

"Why take so much laudanum?" "Because I think I should be better off if dead." To a further question, "If I could be cured I would be content." "I could not stand being worried by my brother of 19 and my sister, who is 24, and my mother. I want to go and work for myself; I should get on better."

(He had forgotten to mention his sister and when she was mentioned, he stammered.)

"They pick on me, for example, if I get up too early; and I always feel I could not do the things I want to do. But when I went to California, I felt uneasy even when working alone. I have been dissatisfied all my life. I do not know what my trouble is or what I have done different from any one else." To a further question: I went to school."

"Have you done anything with which to reproach yourself?"

"No. I think there must be something wrong with my brain." To a further question: "The whole case is imagination."

"Why do you think so?" "I do not know."

"Since when have you thought so?" "Since four years ago when neighbors would interfere with what I had done on the farm, for example, in planting the corn, people would comment upon it and my mother would take their advice and overrule my way."

"Why do you take it so hard?" "Because I have poor judgment."

The inquiry was then pushed with regard to his relations with the opposite sex. He declared that he had liked their society, although he did not dance and was not "immoral" as he called it, but he confessed his bashfulness and also that he thought girls were not worth spending so much money upon as was necessary; he did not think they were dependable and he had decided not to marry because of seeing so much of married life; he had never cared for any particular girl, although he had often desired them, but had not the "face" to make advances towards what he thought to be wrong, as at school boys and girls had been separated; besides the girls laughed at his timidity. Accordingly he told the other boys that their indecent talk was wrong and was laughed at for his pains and made still more bashful and ashamed.

However, he had dreamed of erotic situations,

which made him feel ill; and he feared it would injure his health. As a small child, his dreams had been terrifying, such as falling and being killed, or being run away with by horses; but these had not troubled him since. There had been no spontaneous diurnal emissions; but he has provoked them until he was 18 and had then ceased to do so, as other boys often teased him about it and said that he would be impotent as he had ruined himself hence he was much ashamed.

Interpretation. The failure of this boy to stand up for himself was due to his own shame at the onanism he had practiced and his fear that it was injuring his mentality; so that he was not able to stand up against other boys, by whom he was much teased, in consequence of which he withdrew from social life, especially where girls were concerned and became taciturn and irritable.

He had to confess that if he could be well of "a hopeless mental inferiority which masturbation must have caused," he would be willing to live and would like to work.

Treatment. He was assured and examples were given him to show that he was quite mistaken about the effects of onanism; and he was asked to think over until the next day the explanation I gave him concerning the genesis of his shame and timidity, meanwhile promising not to attempt suicide until he had seen me again.

The next day discussion was resumed, until, in less than a week the boy could be trusted alone, not only in the hospital grounds but in town. He went home in ten days perfectly cured. The pains referred to the stomach, which of course disappeared, were merely an attempt at fixation of his discontent upon a bodily symptom. The glass swallowing furnished the suggestion for this, a very common mechanism in hystericals. He has been at work and in good spirits ever since, now nine months ago. The treatment was conducted in a general hospital and the maximum of freedom was allowed the patient from the first, the greatest tact being urged upon those who nursed him.

It should not be necessary to point out that much of what the patient said about renouncing marriage for instance, was a mere excuse for his own inadequacy and shame. But it is necessary to assert that the sexuality as such was not the important feature in this case in spite of its conspicuous featuring in the history. The really efficient pathogen was incapacity of social adjustment due to shame at his own failure in social adaptation because of the half-heartedness of his attempts, due to erroneous notions about the consequences of his conduct.

The patient actually knew all the facts, but from ignorance he was unable to interpret them. When their import was understood, he learned to

adapt in only a few weeks. The case is again an instance of conceptual error of which the affective situation is merely consequential and spontaneously disappears upon rectification of false notions which produce it.

Love-sickness in a man. Another case of contemplated suicide, in a young banker, was caused by a period of prolonged strain and overwork, culminating in a serious rupture of an engagement which had lasted six years. The patient was lachrymose, agitated, trembling by fits and starts; he would rush from the table suddenly with the desire to kill himself, or break into tears without provocation, especially when with his family. At his work he appeared comparatively calm, but it was only by an intense effort which further debilitated him. He had lost forty pounds in weight. His relatives exerted him to buck up, forget it, or sometimes chaffed him about it all. This only aggravated his distress which a progressive insomnia kept augmenting.

The treatment used was to convince him of the need of distraction from his painful ruminations and that this could be done only by hard physical work, which would at the same time increase his resistance to painful memories, by removing the weak irritability of his nervous system. He was sent to the country two or three times before the right kind of place was found and before he learned to arouse himself from the bodily lethargy and mental concentration upon his trouble. Eventually the right place was found where wood-chopping and farm work kept his mind occupied and restored him physically. He now feels better than he has for ten years and is again at the head of his business.

The love-sickness of this patient was only one of the factors in the case, but it is frequently the outstanding feature of a nervous breakdown. It is very wrong to meet it lightly. The proper analysis of the situation should always be undertaken and the co-operation of the patient enlisted toward overcoming the troubled mental state. There is practically always some psychological fact concerning which the patient needs enlightenment after which he can manage the situation.

SUMMARY.—What is familiarly known as the influence of the mind over the body needs no illustration now-a-days; and a historical retrospect would only burden an attention likely to be strained by what is already involved. But an understanding of how disturbances apparently physical, are easily influenced by means we call mental, is clouded in errors most detrimental to the understanding of not only what we call individual disease but of the behavior relationship of human beings in general.

My first endeavor has been to expose the fundamental fallacies and dangerous implications

imminent in the practice of those persons or sects who pride themselves upon being non-medical. But my hearers may take no pride that they are not as these, for my second endeavor has been to show that for the most part the mental healing of many medical men is not only less efficacious, but more unscientific than that of the mental healers themselves. I have made no explicit demonstration of this latter contention; for it is so apparent among the facts related that even he who runs may read. My third endeavor is to convey an inkling at least, of the principles of the methods which should be used against certain functional nervous disorders. It is not only the limitation of time which prevents a full exposition. A more important reason is the lack of record of therapeutic details, absent because the attention of the operator is so fully occupied in the practice of his art that it is not possible for him to describe his procedures at the moment; but the main obstacle to adequate presentation of psychotherapeutic method is the great lengthiness of the portrayal to which it would take one for the most interesting, important and instructive type of case, unless one were to employ a combination of phonograph and cinematograph, a stage not yet reached in current clinical teaching.

The therapeutic results of the kind I describe are by loose thinkers attributed either to suggestion, to faith or to confidence in the physician and it cannot be too strongly stated that neither of these factors is the true one in any of the cases with which I have to do.

Were confidence the important element, I should not succeed where the family physician had failed; for while in him the patients usually put a trust almost blind, to me most of them have come almost sceptically. Confidence, of course, has to be gained; but as neither apparatus nor manner is of an imposing character in my consulting room, that confidence comes only as a result of the patient's appreciation that an understanding of the situation is being developed.

As to suggestion, I take the greatest pains to avoid fallacious short cuts to the removal of symptoms, of which I seek to reach a foundation by giving the patient a rational understanding. When this is done, the patient needs no moral support from the physician nor anyone else; for

having learned his own psychology he knows how to direct himself. Hence, when the cure is complete, relapses do not occur.

It would have been desirable to have included in this account some cases which had already visited in the faith healers without success. I have several such, of which unfortunately, social considerations prevent the full report, without which there would be little instruction to readers.

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DISCUSSION.

Mr. Solomon: The remarks of Dr. Williams are extremely interesting and they are practically along the line of the scientific. If we consider faith healing methods we must come to the conclusion that practically all of them depend on suggestion and they treat the patient as if he were feeble in will power and mind, as if he had no personality of his own, as if he were rather infantile, as if it were unnecessary for him to understand the cause of the condition. The fact is, therefore, that all the faith healers, whether they are of one denomination or the other, depend on their results upon the ignorance of the patient, upon the relative degree of infantile attitude that the patient may have. To really have gotten results in psychotherapy, to treat the patient as if he could understand things, we have got to do away with all the faith healers who know absolutely nothing about the constitution of the body, the constitution of the mind; they don't know anything of the inter-relation of the emotions, of the effects of the emotions upon the mental constitution, and also they know nothing of the effects of the emotions upon the secretions in general. Psychotherapy is the science which Dr. Williams has referred to. We try to get down to the root of the conditions to find out the reason why the patient has the fears, the certain defects which he in particular may have; we then endeavor to build up the will power, the adaptation of the individual to the situation which he is in. If we show him how certain ideas of habits which he has, how they started, what the genesis and the evolution of the condition is, he can understand it as well as anybody else; but the understanding of the cause is not the cure. The understanding must be followed by the development of the will power, the awakening of the emotions and of the interest in the patient, in stirring in him all the will power which is still in him. but which he has not been cultivating to any extent.

Dr. Singer: I regret I did not hear Dr. Williams' paper. I feel he is doing a very excellent work in psychotherapy, the method as pointed out is strictly physiological; is founded on facts which are capable of demonstration and is unquestionably one that has come to stay and do an immense amount of good, not only to one patient, but to society as a whole.

THE PREVENTION OF NERVOUS AND MENTAL DISEASES.

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The role of preventive medicine has probably made greater strides during the last twenty-five years than in any similar period of time and judging from present view-points the practice of medicine of the future will, to a great extent, be the prevention and eradication of those conditions which tend to predispose to or produce disease in or of the human organism. In the future of medicine the mere combating and removal of disease must play increasingly a more and more subordinate part. It is now generally recognized that most if not all diseases can be prevented and it is possible to remove the causes where recognized long before disease begins. In the removal and eradication of these causes the problems of hygiene and sanitation occupy the foreground. One has only to note what is being done at the present time not only by members of the medical profession as such but more particularly by health boards and other organizations representing not only localized communities but also those of state, national and international scope.

Take for example the single question of tuberculosis. At the recent opening of the tenth annual meeting of the National Association for the Prevention of Tuberculosis, Dr. Charles Hatfield, one of the directors, reported that there were more than 2,500 anti-tuberculosis agencies now well established, which included 550 tuberculosis sanitaria and hospitals, 410 dispensaries, nearly 1,200 anti-tuberculosis associations, and 250 open air school and fresh air classes. He also states that while the entire budget of the national office for the period of ten years had been only \$200,000, federal, state and local anti-tuberculosis agencies, both public and private, had expended during the same period probably \$100,000,000.

The last legislature of the state of Indiana appropriated for the work of the State Board of Health \$12,000 annually. This, however, is relatively a small amount in comparison to that spent by local city, town and county boards for public health work. Assuming that it is no more than an amount equal to that spent by the State Board of Health, it gives us \$150,000 spent by

the State of Indiana for public health purposes annually. Assuming further that this is about the average amount spent by each state, we have approximately at least \$7,000,000 spent in the United States alone in the effort to prevent sickness and to improve the health of the people in general.

That much benefit is accruing from the work thus carried on by the various health organizations can scarcely be questioned. We have seen the practical eradication of malaria, of yellow fever, of cholera, of typhoid fever and other diseases, infectious and contagious in nature, as well as a definite diminution in frequency and mortality of a great many other diseases.

There is however a branch of preventive medicine which has not and is not keeping pace with the general progress that is being made and that is in the realm of nervous and mental diseases. It is true, of course, that any measure which tends to improve and benefit the general physical health must more or less directly improve and benefit the state of health of the nervous system, particularly in regard to those diseases of the nervous system arising more or less directly as the result of bacterial and toxic conditions affecting the human physical organism. But this cannot be said of those nervous and mental conditions which are more or less directly due to or dependent upon a defective inheritance or a pernicious, improper rearing, education and training during that period of growth and development when the make-up of the organism is being moulded and fashioned in preparation for the struggle for existence, during that period of its life when it is the most impressionable and responsive to the conditions under which it lives and the influences that are brought to bear upon it. It is to these particular phases of preventive medicine that the scope of this paper will apply.

The importance of this phase of the question is indicated by the fact that according to the Report of the U. S. Bureau of Census in 1910, there were at that time in institutions for the insane 187,791 inmates, and in institutions for the feeble-minded 20,731 inmates, making a total of 208,522 under institutional care, a number which is said to exceed the combined enlisted strength of the U. S. Army, Navy and Marine Corps; and also to exceed the number of stu-

dents enrolled in all the colleges and universities of the United States.

The cost of maintenance of the insane in institutions, as given in the Report of the Bureau of Census of 1904, numbering at that time 150,151, is \$21,329,228, which does not include the cost of maintenance of the feeble-minded under institutional care. Assuming that the cost of maintenance in 1910 was in the same proportion as in 1904, the amount expended must have amounted to more than \$30,000,000, but since the cost of living has been rising higher and higher during these years the cost of maintenance would be proportionately higher. In the State of Indiana, according to the report of the State Board of Charities ending Sept. 30, 1913, there were enrolled under institutional care 5,503 insane and 1,490 feeble-minded and epileptic. The amount drawn from the state treasury in 1913 for the regular maintenance is given as \$1,257,359. This in a state, the population of which is approximately 2,750,000. Assuming that the same relative proportions exist throughout the United States and there is no reason why Indiana should be more unfavorably situated than other states as regards these conditions, it may be estimated that there are at least 300,000 under institutional enrollment, with a relative cost of maintenance of nearly \$100,000,000. The great majority of these are fundamentally and constitutionally defective and one is comparatively safe in saying also that the majority of these, had they been properly reared, trained and educated during the earlier years of their development, could have been made self-supporting and useful citizens or if proper control and management were exercised during the years of maturity could at least be made self-supporting, instead of being not only an economic drain, but also a moral and social menace to society.

The President of the American Statistical Association in 1910 reported that there were present in penal institutions at that time 113,579 prisoners, equivalent to 125 per 100,000 of population, and that during the calendar year there were committed to prison 479,763 persons. He also stated that "one cannot even hazard a respectable guess in regard to the number of criminal acts that resulted in the apprehension of alleged perpetrators and what proportion they bear to the number finally brought before the criminal courts. There

may be and probably are more than 1,000,000 arrests in the United States annually."

While it may be true that many of these, based upon past standards, cannot be regarded as psychically defective, yet a closer psychological and physical study of these individuals by modern methods and according to modern standards, discloses a defective or abnormal trait in the make-up, due either to a bad heredity or to a defective rearing and training. According to Dr. Goddard, of Vineland, N. J., there is every reason to believe that from 25 to 50 per cent of our criminals are feeble-minded. If it were possible to estimate the amount of money that is spent annually in disposing of these individuals, the cost of capture and arrest; the time, money and energy spent in the endeavor to convict and defend, and the amount that is lost or spent in taking charge of them after conviction, the figures would undoubtedly be appalling.

Or take another class of individuals, the prostitutes, that group who are to a great extent responsible for scattering broadcast two great, if not the greatest plagues of the present day, gonorrhea and syphilis. It is generally conceded that the majority of these individuals are mentally defective. Dr. Maud Miner, secretary New York Probation association, found that many of the young girls entering prostitution were not normal mentally; were either feeble-minded, constitutionally inferior, or so-called border-line cases. In reference to this condition, Dr. Goddard says, "that a large proportion of prostitutes are mentally defective, easily led into the life because of natural impulses and our lack of control of them." Dr. Wilson, of Philadelphia, in a paper dealing with the question of eradication of the social diseases in large cities states "that there are approximately 544,250 public prostitutes constantly in the United States, all of whom are infected sooner or later and constantly re-infected with venereal diseases." He also estimates that there are at least three clandestine for every public prostitute, which would create an army of nearly 2,000,000, who must be considered as foci of distribution of infections, and the number inoculated annually would be appalling were it possible to determine it. The effects of these infections upon the physical and mental health of the individuals concerned are sufficiently disastrous, but unfortunately it too often involves the health

and happiness of those more or less directly related to or associated with them. The cost of treatment, the loss of earning capacity, the divorces, divorces and broken homes, the physical and mental wrecks brought into the world, the hospitals and asylums made necessary to care for them, are only a few of the results which the innocent members of society must bear with the guilty ones.

Again, let us consider another group of individuals, those addicted to alcohol or other drug intoxications. Whether this addiction be but the manifestation of a pathologic state of the mental and nervous system, or whether it be the cause of that pathologic state is a question which is the subject of a great deal of controversy. That the excessive use of alcohol is an important etiological factor in the production of nervous and mental diseases can scarcely be questioned. Von Ziehen, of Germany, regards it second only to that of heredity taint. Probably the most reasonable conception of this condition is given by Dr. Neff, of the Foxborough Hospital for Inebriates, Massachusetts, who regards drunkenness as denoting either a disease or a habit. According to Branthwaite, the pathologic inebriate is represented approximately as somewhere between 2 and 2.5 per cent of all alcohol users. Further study of the mental capacity of these individuals and increased knowledge of this condition will doubtless justify the opinion now held by some authorities that a very large proportion of our drunkards are feeble-minded, and the drunkenness is merely a habit easily acquired or a manifestation of disease, a result of that feeble-mindedness. It is not the habit or disease condition that is inherited, but a predisposition or tendency which remains latent or becomes active according to the influences of environment and education during the years of growth and development. As to whether alcoholism can produce mental deficiency in the offspring, Dr. Groszmann in discussing this question states "that we should be very cautious in assuming that alcoholism can be considered as a hereditary cause of mental deficiency in the offspring. Alcoholism should be considered rather as a symptom of a deeper constitutional defect, one of the evidences of degeneracy."

There is still another group, larger than any of the preceding which must be looked upon as border-line cases between the normal individual,

capable of exercising what is regarded as a normal control and responsibility of actions and conduct in relation to the social fabric of his environment, and those individuals whose actions and conduct bring them into conflict either actively or passively with that social fabric. These individuals are permitted every right and privilege enjoyed by the normal person and are supposedly able to maintain the average standards and fulfill the average requirements of the life that surrounds them, but the problems of life to them prove insurmountable. In the struggle for existence they drop by the wayside and go to make up what we are pleased to call our derelicts and ne'er-do-wells, many going to make up our tramps and vagabonds. In this group also may be included those who under ordinary conditions may be able to exercise a normal control over their actions and emotions, but let any special strain or stress be thrown upon them and they cross the boundary line into the realm of the abnormal. They go to make up our so-called hysterics, neurasthenias, hypochondriacs, the sexual perverts, the moral degenerates, and the hoodlums, the incorrigible and the inhuman. In reference to this class, Dr. Goddard states:

We have recently discovered that there are many feeble-minded persons who are not recognized as such by the ordinary observer. They do not show any of the stigmata of degeneration and are not found out until they have done something wrong. Even then their wrong-doing is more often attributed to wilfulness than to inability to do right, yet who are thoroughly irresponsible for the acts they commit, who cannot compete on equal terms with their fellows, or manage their affairs with prudence, in short are incapable of living an independent existence, but must always be dependent upon others.

In a critical examination of the fundamental etiological factors at the basis of these various groups, it becomes evident that a relatively small number of them have resulted from or are secondary to some gross physical disease or injury and that underlying the greater number by far are the two conditions already mentioned:

1. A bad inheritance constitutionally.
2. An improper rearing, or bringing-up.

Von Ziehen has found what he regards as an hereditary taint or endowment existing in from 50 to 90 per cent of mental diseases; that in 60 per cent of all institutional admissions an undoubted hereditary taint exists, it being more frequently present in some forms of mental dis-

case than others. If this be true of mental diseases proper and as a matter of fact all authorities recognize a bad heredity as playing an important part, it must be relatively true in regard to other neuropathic and psychopathic states.

Cannon and Rosanoff in a report of the study of Heredity in Insanity in the Light of the Mendelian Laws submit the following propositions:

1. If both parents be neuropathic, all their children will be neuropathics.

2. If one parent be normal, but with a neuropathic taint from one parent, and the other parent be neuropathic, half the children will be neuropathic and half will be normal, but capable of transmitting the neuropathic make-up to their progeny.

3. If one parent be normal and of pure normal ancestry and the other be neuropathic, all children will be normal and capable of transmitting the neuropathic make-up to their progeny.

4. If both parents be normal, but each with a neuropathic taint from one parent, 25 per cent of the children will be normal and not capable of transmitting the taint, 50 per cent will be normal and capable of transmitting the neuropathic taint, and 25 per cent will be neuropathic.

5. If both parents be normal, one of pure normal ancestry, the other having a neuropathic taint from one parent, all the children will be normal, half of them capable of transmitting the neuropathic taint, the other half being incapable of transmitting it.

6. If both parents be normal and of pure normal ancestry, all the children will be normal and incapable of an hereditary tainted transmission.

While some authorities are inclined to attach the greater significance as an etiological factor in the production of neuropathic constitutions to a defective inheritance, there are others who look upon an improper bringing-up as the predominating factor. Even Von Ziehen asserts that what is inherited is only a tendency or predisposition to which must always be added other factors acting injuriously.

Dr. Smart, medical examiner of the mentally defective children in the department of Education of New York City, in discussing the question of "The Relation of Physical Inability and Mental Deficiency to the Body Social," reports:

In 10,000 cases presented for examination chosen at random to determine their physical and mental fitness for the work required of them in the school grades, in every instance where the child had fallen behind others of the same grade and age and had continued to retrogress, she found positive physical defects, and with many the combination of physical unfitness with a serious mental defect. Many of the

physical defects could be cured, the greater number very much bettered, but the mental unfitness was regarded irreparable. The main physical defects reported and the frequency of occurrences are given as follows (in percentages): Enlarged tonsils and adenoids 77, ocular trouble 75, dental defects 71, defects of hearing 50, anomalies of speech 42, sexual disturbances 41, neurotic conditions 37, nasal defects 34, cardiac defects 29. The frequency of these conditions indicate the advisability and necessity of a closer and more accurate examination of the physical status of the child earlier in life, before ever being sent to school and there discovered, for by that time much harm has already been done often irremediably so, both physically and mentally.

If to the hereditary taint and the physical defects there be added an improper education and training, we have a triad of etiological factors responsible for practically all of the abnormal conditions under consideration. This improper education and training will be found to be active from birth, for the very individuals who procreate and produce offspring hereditarily tainted, very rarely recognize or admit the possibility of possessing qualities in their own constitutional make-up which could possibly be transmitted to their offspring and as a consequence these very individuals are the least suited or the least capable of rearing the unstable organism which they have produced. It is in early life that the foundation is laid for many of those habits of life which prove to be so injurious and pernicious in determining and modifying the thinking, feeling and acting of the individual in the years to come. While in many of these individuals the regime and control carried out in school life exercises a beneficial influence in that they are made to recognize the principles of self-control, discipline and authority, yet too often their unstable make-up is not recognized even by present methods of school inspection. Furthermore, the few hours spent under schoolroom supervision cannot possibly counteract the influence of the lack of control and management during the extra-school time.

Dr. Crampton, director of the physical training in the department of education of New York City, stated "that the great failure of education of today is the inability to recognize the fact where it is absolutely essential that it should, that children differ in rapidity of development, both physically and mentally." This, if true and there is a great deal of evidence in support of the statement, is of particular importance in re-

gard to the treatment and management of them during the educational period.

We are coming to see more and more that the mental environment of an individual is quite as important for the acquisition and maintenance of good health as that of other external conditions. We are recognizing more and more that the mental environment affects not only the mental and nervous activities, but also more or less definitely the various physical functions of the body, thus influencing both directly and indirectly the mental health. While it has generally been recognized that intense emotional conditions, such as fear, pain, sorrow and pleasure, exercise an influence upon some at least of the physical functions of the body, fear, pain or sorrow lessening the appetite, producing lessened energy and activity, etc., motor or mental, pleasure producing the opposite results it has only recently been placed upon a definite scientific basis by experiments carried out by Cannon and others who have shown that the emotions, for example, fear and pain particularly, increase the flow of suprarenal secretion, which continues some time after the subsidence of those emotional states.

We must bear in mind the necessity for a stable, well controlled, well regulated nervous system in the maintenance of a sound body and mind, and recognizing this necessity the question arises, "What are the conditions or requirements necessary for the creation of a stable-acting nervous system?" Dr. Barker of Johns Hopkins Hospital in outlining the scope of the work of the National Committee for mental hygiene said:

Modern medicine has taught us that the conditions necessary for a good mind include:

1. The inheritance of such germ-plasma from our progenitors as will yield a brain capable of a high-grade of development to individual and social usefulness.

2. The protection of that brain from injury, and the submission of it to influences favorable to the development of its powers along normal lines.

Considering the enormous amount of money, time and energy that is being used up in caring for those confined in the various institutions and the meager results that are being attained, whether considered from a social, moral, intellectual or economic viewpoint, and considering further that still larger group who fail to measure up to the average standard of mental capacity and yet are allowed the liberty of action that is accorded the normal individual, who in spite of

their failures and deficiencies are permitted to bring into the world beings who must inevitably bear the stamp of the defective stock from which they spring and who in addition, in spite of their unstable and defective judgment, are called upon to assume full charge of the management and training of those tainted beings until they reach an age when the latent force of a bad inheritance has already been awakened and the injurious habits of a pernicious rearing has already been inculcated, the only reasonable conclusions to be made are:

1. That wherever it is possible, every individual whose constitutional make-up is such that any offspring propagated therefrom will inevitably be defective, that individual should be denied that right or privilege. Many sentimentalists and so-called humanitarians will no doubt regard such a restriction of personal rights and liberties as unjust, inhuman and cruel, and yet we may ask which will be the more just and human, to restrict the rights and liberty of a single individual, or to give that defective individual with his inherent abnormal proclivities full sway and allow the procreation not of one but usually of many beings who can never obtain an equal footing or an equal chance in the struggle for existence? It certainly does not require the exercise of any superior intelligence to decide which procedure will in the end be the more just, more human and the wiser.

2. That whenever and so soon as it is recognized that the constitutional make-up of the child is defective and that it possesses an unstable nervous organization, or that the environment and training of that organism is pernicious, that child should be placed in that environment and under that instruction which will enable it to develop and acquire those habits of life which will be the most likely to insure a healthy body and mind. To do this, we must study the physiological, physical and psychical make-up of each individual child, its capabilities, its habits, its emotions, its affective condition of well being, its general and special physical organs and their functioning.

In regard to the first proposition, it may be said that while various state legislatures have been enacting laws denying certain groups of defectives the right to marry, yet the number thus prevented will doubtless be very few. Experi-

ence shows that these laws are not an inseparable barrier to such individuals when they wish to marry, and the majority of them do. Thousands of feeble-minded, of epileptics, of alcoholics, of neuropathic and psychopathic constitutions, of derelicts and criminals are allowed to intermarry year after year, regardless of such laws, and produce thousands of defectives who must inevitably become a social menace and an economic burden. It is only too evident that the mere making of laws as they are at present must prove wholly ineffective so long as these individuals are accorded their full liberty of action. The only effectual method from the present viewpoint is for the state to assume guardianship of such individuals and refuse them that privilege or destroy their procreative properties. There are, of course, many objections that can be offered against such a measure as the last. There would be opposition from many sources, but apart from the destruction of that function by sterilization it is doubtful if any other measures can be utilized that will materially lessen the propagation of defective offspring by them.

Sterilization has its advantages and its objections, its advocates and opponents. The procedure itself is a comparatively safe and harmless one to the individual. But the most serious objection, I believe, is that it places the individual in a position where his sexual nature can be exercised without any restraint, if ever such individuals are restrained by the fear of possible conception taking place, and this affords the greatest opportunity for the diffusion of gonorrhea and syphilis, those great, if not the greatest scourges of the civilized world of today. Furthermore, sterilization laws of the present time are entirely too restricted in their application. It is not the confirmed criminal who spends the most of his time in the various correctional and penal institutions, nor the extreme mental defective who also must be cared for in one or other of the charitable institutions who are the source of danger, but it is more particularly to those milder forms of defectiveness that more attention must be given, those individuals who in spite of the average opportunities of life never get above a condition of want and drudgery, or a proper control of their emotions or their morbid cravings. As an illustration, the writer has in mind two families, particularly, who have come under his per-

sonal observation during the last two years.

One is a German family consisting of father, mother, and seven children. While both parents are honest, hard working and frugal, and have been able to supply the ordinary wants of life and to meet the ordinary demands of life, yet it is quite easy to recognize a low grade of mentality in both. The oldest child with difficulty maintained a passing grade in his school work. Pubertal changes were delayed until the age of seventeen. He manifested physical evidences of hereditary syphilis, as shown by Hutchinson's teeth, and by giving a positive Wassermann of the blood. At the age of eighteen he was committed to a hospital for the insane because of the development of what was regarded as the catatonic form of dementia praecox. While some improvement in his mental condition has taken place enabling him to live at home and to carry on some form of physical work under the supervision and direction of someone else, yet the family is constantly seeking advice because of his peculiarities and eccentricities in action and conduct. The second child at seventeen also was committed to the insane hospital because of a maniacal attack which lasted about three months. As yet the other children do not manifest any marked deviation of mentality except backwardness in their school work. This in conjunction with the tendency to a Mongolian type of features indicates the probability that they too will manifest mental deviations at one or other of the critical stages of life. The other family was of foreign extraction, and consisted of father, mother and five children, with the sixth on the way. The oldest was fifteen, the youngest two. The father was alcoholic, the mother of a low grade of mentality. All the children were mentally defective, the four oldest ones being committed to an institution for the feeble-minded. What an economical saving it would have been if the function of procreation had been abolished or if these individuals had not been allowed to marry. It must, it is true, be admitted that laws simply to prevent intermarrying will not solve a problem of this kind, for if not allowed to do so legitimately they would still satisfy their natural proclivities by illegitimate procreation.

In dealing with the second proposition, namely, that of the child, many conditions come up for consideration. Beginning with the pre-natal period it must be said that there is much to be done, many changes to be made in the management and hygiene of the mother during the period of pregnancy, in order that the pregnant woman may be placed under the conditions most favorable to the production of a healthy offspring. When it is observed how little attention is given to this extremely critical period in the lives of both mother and child, one must admit that the laws of nature are most generous and lenient, in that, in spite of the many injurious influences

brought to bear upon the procreative function and process, they succeed so well in creating so complex an organism with so little evidence of having been subjected to those injurious agencies. The old idea that is so prevalent, that nature will take care of herself under any and all conditions of life is so deeply impressed upon the minds of the laity in general, and indeed also upon the minds of many physicians, that any attempt to change the old order of things meets with a great deal of criticism and opposition. Most of this is due to ignorance, apathy or indifference. It is true, of course, that nature would take good care of herself if provided with the requirements necessary to the fulfillment of her laws in a normal manner, but unfortunately those conditions have been and are interfered with by those artificial agencies of human creation. In order to remedy this, more attention must be given to what may be called the hygiene of the mother during the period of pregnancy, such as proper regulation of the habits and conditions of the physical and mental life, attention to nutrition, assimilation and excretion, etc.

After the birth of the child more attention must be given to the hygiene of its mental and physical development during the critical periods of infancy, childhood and adolescence, for it is at this time that the foundation is laid for the acquisition of habits of life which will make or mar the future, which will leave the pernicious inherited tendencies or predispositions in a dormant state, or awaken them into uncontrollable activity. Defects of growth or impairment of function of any part or parts of the body should be corrected or removed, so far as that is possible, as soon as recognized, and not allowed to run along in the hope that nature will take care of it herself until such changes in the organism have taken place as are irreparable and irremediable. Furthermore, more attention must be given to the study of the development of the mental life of the child, in order that those abnormal tendencies and traits which in the years to come reach that stage of development and exercise that influence upon the life and conduct as to create a conflict with the environment may be the earlier recognized, and measures adopted for their subjugation and for the creation of channels of healthy thinking and acting. It is a common experience to find a child manifesting especially

peculiar or abnormal tendencies regarded either with indifference or more frequently as a source of amusement and everything done to encourage and to further cultivate those unhygienic habits and propensities. Here again the general impression so prevalent that nature will take care of herself, that the mind does not require guidance and training but should be encouraged and nurtured along the natural tendencies predominantly manifested, is a pernicious one. It would be just as reasonable to assume that one can become an expert mechanic, a polished artisan or a great scholar without the assistance and guidance of previous instruction and experience.

The mind of the child is fashioned and moulded by the influences of its environment upon its constitutional make-up. It learns by imitating the actions and conduct of those about it, and by the teaching and training of those who care for it. The reaction of the child to its environment, the outward manifestations of the psychological processes taking place, are more reflex in nature than in the adult, are more directly in response to the action of the environment upon its inherent natural tendencies and proclivities. If the mental life of all children manifesting abnormal tendencies could be more closely studied, it seems reasonable to assume that with a better recognition of the processes of abnormal psychology, means will be found whereby those processes can be more readily diverted from their unhealthy channels and guided into those more hygienic and healthy. Unfortunately with the majority of those who later in life become wards of the state, their home influence and home teaching is beyond control. The benefit that is derived from the discipline and teaching of the few hours of the ordinary school life cannot overcome or take the place of the lack of them at home. Too often, moreover, the failure of the teachers to understand the peculiarities in the mental make-up of those children leads to improper and unwise treatment and management being given them, and as a result intensify or exaggerate the already existing pernicious tendencies.

The state should have the authority and be so situated as to be able to assume the responsibility of the care, management and education of those who so early in life manifest those tendencies and propensities which indicate that sooner or later they will become a menace or burden to

their environment. The uncontrollable, the irascible, the incorrigible child with an inclination to steal, lie, or manifesting other immoral or criminalistic tendencies should be a ward of the state for the remainder of its life or until it has fully demonstrated its capacity and ability to conform to the ordinary requirements socially, morally, intellectually and economically. Many of these who become State wards in the early years behave fairly well so long as under that authority and discipline, but when liberated from this institutional control soon enter upon a life of uselessness, shiftlessness and degradation. The State should be called upon to exercise the same control and supervision of them after leaving as while under institutional care and management. It is unjust to most of these individuals, unjust to the community in which they find themselves, to free them from the restraining and disciplinary influences which were considered necessary heretofore. The main objection usually offered against this proposition is that the expense entailed for the State to make provision for and to take charge of them would be too great. But the majority of these could be made practically self-sustaining if the State would utilize them in improving public utilities or in some agricultural or manufacturing vocation. Besides it is extremely doubtful if the primary cost of such a procedure would approach anywhere near what they eventually cost, let alone the economical loss because of their inability to be self-supporting and self-sustaining.

In conclusion, let me say that as conservators of the mental health of our fellow creatures, physicians should and must be better trained in normal and pathological psychology, in order that they be better fitted to give advice and guidance in regard to the care and management of those manifesting psychopathic tendencies. The public must be educated in regard to the importance and necessity of restricting or abolishing, so far as possible, the production of unhealthy beings if there is to be any diminution in the number and cost of maintenance of defectives, as well as of the economic loss from their lack of productivity. And when once the public mind becomes convinced that such measures are necessary for the general welfare it sooner or later adopts the means to accomplish what it desires.

DISCUSSION.

Dr. Sterne: The subject opened up by Dr. Neu strikes at the foundation of things. If we are to get anywhere in preventing, in lessening the degree of insanity and mental deficiency which now exists, or if we are to ameliorate to a degree that which has already well advanced, we must divorce our professional ideas from all sentiment. I don't know what other word to use. The great trouble has been that scientists everywhere, and particularly those of the medical profession, who bring up anything for the welfare of the human race, are immediately confronted by antagonism. The opinion is prevalent that whenever the medical profession stops to do anything in the way of reformation that the medical profession wants something for itself. The medical profession is far from selfish in its ideas and very far indeed from selfish motives in furthering those ideas, but we have got to get down to basic rock if we want to accomplish anything. This country could build a Panama canal every five years with the sum lost through mental deficiency all along the line. It costs in round numbers something like \$50,000,000 a year to care for the mental defectives now in our institutions, not counting those outside of the institutions, not counting the gross loss that is occasioned through the lack of earning power of the offspring of these individuals who are confined in the institutions. In other words, it is a big business proposition. Now, whenever we try to combat a proposition of that kind with pure scientific reasoning, we are immediately confronted with the accusation that we are doing something which is not humanitarian; that the individual has a right to propagate his species; that we take away a part of his right; that we rob him forever of something that no power can reinstate to the full capacity. We are getting more and more defectives on account of the "kid-glove" manner of handling the situation. There are just two ways to deal with the situation if we are to stamp it out. One is to take charge of the individual and prevent that individual from propagating his species.

Dr. Zellers: I read in the morning paper that this organization goes on record as being in favor of sterilization as the ideal manner of checking the growth of insanity and defectiveness. Now, I was at the meeting of the medical association at Ontario last year and that very distinguished body of alienists spread its resolution in regard to sterilization and it was passed, and the president, very considerably, asked for discussion on the subject, and the opinion seemed to be unanimous that that was the correct way to dispose of the question. It was just about to be passed when we took occasion to present the western view of this question and then we got through the committee "resolved, that it might be too hasty," and they postponed the matter, allowing it to lie dormant a year and they adjourned after a big meeting and among the things they de-

cided was against marriage without eugenic certificate. This mighty civilization was not created that way. It was created by evolution, by taking the lowly and building them up. No state can afford to take the stand of adopting any measures that will limit human reproduction. If I had time this afternoon I could show you figures that will show you that insanity is not increasing. Sanity is increasing—not insanity. The standard of intellect is growing higher every year. It requires a higher intellect to acquire a position in the world, consequently those that fall on the other side of the normal line of intellect is larger every time. I for one do not like to attend a meeting when this theory is advanced and I cannot attend this meeting and not raise my voice against its advocacy.

Dr. Julius Grinker: This subject—the prevention of nervous and mental diseases—is so old that one is almost ashamed to say a word for or against any phase of it. I think it has been the effort of centuries, perhaps, to prevent nervous and mental diseases. It is a question in my mind whether we have more nervous diseases today than they had years ago; whether we have more mental diseases today. The methods whereby prevention is to be accomplished vary from time to time. I think the old method of throwing the imbecile or sick child in the river is about the one coming to the front now; some claim it is a good one. I believe to devise a means to prevent mental diseases as well as nervous diseases will require the combined labors of not only the physician, the social worker, the economist and the politician, but the entire community will have to set itself to work. In other words, it is a question of evolution; it is a question of improving the entire race. Sterilization amounts to nothing at all, because it begins with the unfit, those who have already been considered unfit, and those who have become charges of the state, those who have already been kept from mingling with the community; and I think it is the duty of the state to keep them from getting into the community again. The real remedy is not found in any one method. One point that has been neglected is this, that as long as we permit thousands of men and women to grind away their lives in factories, to lead a monotonous existence, we shall have nervous wrecks and neuresthenics among the laborers, who, when they have reached thirty, are worn out.

Although I have been appointed secretary of the committee on the prevention of insanity. I do not know what the committee will decide, or what means they will suggest. Each one can be discussed; one little remedy will avail nothing. As far as sterilization is concerned, it means simply this—that you enable an individual who is already degenerated to go about and acquire the venereal diseases without running the risk of it being known that those people do have a sexual desire, and it is so much easier to scatter venereal diseases. If sterilization is the remedy, then I believe that it should be put down

as a normal means of weeding out the unfit among the population. How many morons, how many inferiors are there in the community that are not prison inmates? If we are going to have sterilization, examine our own families, remote and near, and see whether there is not one among them that ought not to propagate.

Dr. S. A. Koppnagle: We say charity should begin at home. I will change it; education should begin at home, and I mean among physicians. If a child is defective, I believe that the obstetrician, the specialist or general practitioner is the one that should be tasked to detect these abnormalities. He cannot detect it probably at once; it will need a little time—probably one or two months, probably longer than that. I want to ask of the physicians here how many of us will give our time to the study of the infant that was born and try to find out the physical, mental and nervous defects that will develop in the future? How many? Raise your hands. No; we do not do it because there are no dollars and cents in it. It is plain. Most of the neuresthenics, most of those who suffer from mental defects, from physical defects and nervous defects come from the working people and it is poverty that forces them to spend their energies and their lives and their vitality in the factory, and it is not until the physicians will raise their voices against their employers that these questions will be solved.

Dr. Neu (closing): In regard to the objection of sterilization I have voiced my sentiments definitely, but that is not going to solve the problem. In regard to segregation, so far as we can see at the present time, that offers a better remedy perhaps than anything else until we find something better. The one advantage of segregation is that, if properly applied, the subject is not a burden to the community. They can be made self-supporting and self-sustaining. If we are to place any reliance upon the Bureau of the Census, the increase of insanity is out of all proportion to the increase of population. There is no single remedy within our reach. We have to make use of all means we have at our command. In regard to the sentiment of the last speaker I think my conclusions answer his statements.

Tuesday, 2:00 P. M., Hotel La Salle.

CHAIRMAN: If the committee is ready to make a report on "Alcoholism as a Causative Factor of Insanity," we would be glad to have that report now.

COMMITTEE ON ALCOHOLISM.

Secretary (reading):

Chicago, Illinois, July 14th, 1914.

WHEREAS, In the opinion of the meeting of alienists and neurologists of the United States in convention assembled, it has been definitely established that alcohol, when taken into the system, acts as a definite poison to the brain and other tissues; and

WHEREAS, The factors of this poison are directly or indirectly responsible for a large proportion of

the insane, epileptic, feeble-minded and other forms of moral degeneracy; and

WHEREAS, The laws of many states make alcohol freely available for drinking purposes and thereby cater to the physical and mental degradation of the people; and

WHEREAS, Many hospitals for the insane and other public institutions are now compelled to admit and care for a multitude of inebriates; and

WHEREAS, Many states have already established separate colonies for the treatment and re-education of such inebriates, with great benefit to the individual and to the commonwealth; therefore, be it

Resolved, That we unqualifiedly condemn the use of alcoholic beverages and recommend that the various state legislatures take steps to eliminate such use; and, be it further

Resolved, That we recommend the general establishment by all states and territories of special colonies or hospitals for the care of inebriates, and resolved that organized medicine should be initiated and carried on and systematic, persistent propaganda for the education of the public regarding deleterious effects of alcohol; and, finally, resolved that the medical profession should take a lead in securing adequate legislation to the ends herein specified.

Respectfully submitted,

CHARLES L. READ, Chicago,
W. S. LINDSAY, Topeka, Kans.,
T. B. THROCKMORTON, Des Moines, Ia.,
THEO. A. DILLER, Pittsburgh,

Committee on Alcoholism as a Causative Factor in Insanity.

I move the adoption of the resolution.

A VOICE: I second the motion.

CHAIRMAN: Is there any discussion on this motion? It is moved and seconded that this resolution be adopted.

All in favor please signify by the usual sign, aye.

Unanimous response from the ayes.

Opposed—no response. Carried.

Chairman: I hope that we may pass such a resolution. There is a committee which will report on what constitutes a model hospital or asylum and what the duties of the state are to the physician. It seems to me that that could be very well brought in as a part of the duty of that committee. We have some lawyers present in the audience. I am sure we would be very glad to hear from them. The discussion is now open for anyone to inform us from other states or to give suggestions.

Dr. Singer: I fully agree that is a highly important subject and one that needs a great deal of consideration. There is one point on which I might take issue with Dr. Diller in regard to voluntary commitment. A patient who comes to an institution under voluntary commitment is not deprived of civil rights; he does not lose his liberty without

due process of law, because he has the right to leave that institution by giving notice of his own accord, and I understand that is true of most of the systems of voluntary commitments. Personally I feel that this voluntary commitment is a very great step in advance, even if a great many patients have to be committed by regular process of law. The idea that a patient should be taken before a court and tried like a criminal in the care of criminal officers because he is sick is certainly a shame to the community that permits it to exist.

I am in accord with the suggestion that some model form of commitment might well be drawn up. Some of them are very excellent. The one in Massachusetts is an excellent one. It is founded on one that is in existence in Great Britain. In Great Britain the certificate of two physicians is submitted to the commissioners in lunacy. The commissioners in lunacy are composed of lawyers and physicians and they pass upon the matter. In England, too, they have a system of emergency commitment, which holds good for three days, and all that is required is a certificate of one physician, who should be the family physician. That three days is allowed for the more regular process by petition. There are a great many points in the matter of commitments in this country that need remedy.

Dr. Diller: I would like to see a committee appointed to take this matter up.

The Chairman: Do you want a special committee? If so, the only way to appoint it is by motion.

Dr. King: I make a motion that three physicians and three judges of the municipal court be appointed to form a committee to draft some form of commitment to be reported on at the next meeting.

Chairman: Is that motion seconded?

Dr. King: I wish to modify that motion to read three judges in the municipal and county court.

Dr. Diller: Make it three lawyers; sometimes lawyers are as good as judges.

Chairman: Was that motion seconded?

It is moved and seconded that a committee of six be appointed by the chair, consisting of three physicians and three attorneys, to draft some form of commitment for the insane to be reported on at the next meeting next year. All those in favor please indicate by the usual sign, "Aye." Opposed, no voice.

Chairman: It is so ordered. The committee will be announced later.

COMMITMENT OF THE INSANE IN THE UNITED STATES.

(The Desirability of a Uniform Commitment Law.)

THEODORE DILLER, M. D.
PITTSBURGH, PA.

In looking over the commitment laws of the various states, they appear to me in general to

be cumbersome and unwieldy and in some cases, as in Pennsylvania, to insufficiently guard personal liberty and protect the certifying physicians; and they are usually at fault in not making adequate provision for emergency commitment. In only two states, Massachusetts and New York, do the laws appear to nearly approach the ideal. In Massachusetts commitment may be made by a judge with whom has been filed a certificate of insanity of the alleged insane person signed by at least two physicians; and within the discretion of the judge this person may be summoned before him to determine whether he is insane. The superintendent of any hospital, with the order of a judge, may receive and detain, for a period not to exceed five days, any person who is certified to be one of violent or dangerous insanity by two physicians as qualified by law. The New York law is pretty much like that of Massachusetts.

The law governing the commitment of the insane varies considerably in the several states of the Union. In most of the states the commitment is made by judge or magistrate upon testimony of witnesses. The law usually requires that one or more of these witnesses shall be physicians.

In only a few of the states is provision made for emergency commitment. In Connecticut in case of sudden or violent insanity a patient may be detained in a hospital for a period not longer than 48 hours without an order of the court. In Massachusetts, the superintendent of any hospital for the insane may, without order of a judge, receive and detain for not longer than five days any person whose case is certified to be of sudden or dangerous insanity or other emergency when certified by two physicians as qualified by law. Michigan also provides for emergency commitment for a period not exceeding five days.

Many states require that a hearing shall be held, notice of which shall be sent to the person who is accused of being insane. Many states provide that the judge shall call witnesses and usually require that one or two of these witnesses must be physicians. In some cases the law requires that the person supposed to be insane must be served with summons to appear in court, while in others the presence of the insane person in court lies within the discretion of the judge. In some cases it is required that the examination shall be made in court. In California the law re-

quires that medical examiners must be present at the hearing and make examinations in open court. Commitments are made by judges of the superior or supreme court, by probate judges, by magistrates and by justices of the peace, and a few states provide for insanity commissions; while in one or two, only certain designated physicians may examine the condition of the supposed insane patient. In a number of states the law directs that a written statement must be made by relatives or near friends or some citizen, stating their belief that a certain individual is insane. Perhaps the most cumbersome law is that in force in Florida. This law requires a petition signed by five reputable citizens, stating their belief that the individual is insane (not more than one of whom may be a relative of the alleged insane person) asking that legal examination be made, be presented to the county judge or judge of circuit court to whom the petition is submitted without unnecessary delay, appointing as an examining committee one intelligent citizen who is not a petitioner in the case and two physicians of good professional standing.

In a few of the older states, of which Pennsylvania is an example, commitment to a hospital for the insane may be made without an order of court by two physicians who have taken oath before an alderman coupled with a request for commitment signed by a near relative. The same mode of commitment obtains in Delaware, Georgia, Maryland, Mississippi, Rhode Island and Vermont. This law is an anomaly, since it permits two citizens of the Commonwealth, if they are physicians of five years' experience, to deprive another citizen of the Commonwealth of his liberty. Since the law regards as one of the most precious and fundamental rights of all citizens personal liberty, the law should not permit such liberty to be taken from any citizen except by due process of law and then upon official order by a judge of the court. No one should be deprived of his liberty for any cause whatsoever except by due process of law and by action of the court and this rule should apply to the deprivation of liberty on account of insanity as well as crime.

Therefore, the law of Pennsylvania and states with similar laws permitting the commitment of insane persons on the certificate of two physicians, should be so changed as to conform with that of

the fundamental law of the land and of the majority of the states which require that commitment shall be made only by a judge of the court after due investigation which should include the testimony of two physicians made after examination of the person in question who should always have a chance to contest the commitment.

However, since outbreaks of insanity often occur suddenly or an insane person may suddenly commit an overt act which may require for his own good and the safety of the public immediate action, some provision should be made for the immediate and temporary apprehension of insane persons for a limited period of time, a few days or a week; and evidence should be presented to the court as quickly as possible; and he should be subsequently committed in the usual manner.

If a person committed to the asylum because of insanity feels that he should have redress he may, under the present law of Pennsylvania, bring suit against the two physicians who committed him to the asylum. And I know of at least one instance where two physicians who committed an insane person to an asylum were afterwards compelled to defend suit brought against them by the person so committed who alleged that she was not at any time insane. If such persons feel aggrieved, the burden of defending such a suit should not be upon the two physicians who have signed the certificate, but the state or county should bear the burden. And this would be the situation if the law were so changed that commitment were made by judges of court instead of by two physicians as is now the case in Pennsylvania.

Voluntary commitment of insane persons by themselves is an anomaly and cannot stand a logical and legal scrutiny. A man who is sound mentally may make a reasonable contract; but if a man is insane, it is a farce and against all rules of logic to permit him to make a written contract depriving himself of his liberty. No other contract by an insane man is valid. Why then should an insane man be allowed to make one of the most important contracts that can be made, namely one dealing with his personal liberty, the same to be accounted as valid and legal?

I would submit that the ideal insanity law should contain the following provisions:

1. The insane person should always be com-

mitted by a judge of the court and not by any inferior county or state official.

2. The judge should be allowed to make such commitment on the sworn certificate of two physicians, who have been in practice at least five years and upon the signed request of a near relative or county official.

3. Provisions should be made that the alleged insane person or friends acting for him may demand and be allowed a hearing before a properly constituted legal tribunal to determine the question of his insanity; and only in cases like this should the insane person receive a summons or be required or permitted to appear at the hearing.

4. Emergency commitment should be provided for pending a commitment in the usual manner.

I would advocate that this Association of Alienists appoint a good working committee, which ought not to be too large, to study this whole situation to endeavor to improve upon and overcome the flaws in the present existing laws. Such a committee should have the co-operation of two or three able and philanthropic lawyers. If such a committee did its work well it might be in a position to make a report which would be of the greatest possible help to the several states of the Union in offering hints by which they might improve their existing laws. I recommend the appointment of such a committee of physicians and lawyers.

DEMENTIA PRAECOX WITH SPECIAL REFERENCE TO TREATMENT.

H. A. LINDSAY, M. D.

STATE HOSPITAL, INDEPENDENCE, IOWA.

Since the advent of the term dementia praecox so much has been written and so little valuable knowledge gained in regard to the treatment of its victims that we have felt some aversion to writing upon a psychosis which has been the subject of so much controversy. Some cheer is found, however, when the sum of our knowledge has been contemplated.

Disregarding the borderland and hysterical cases which result in recovery, and confining ourselves to a nosological conception of the group, we may say that the clinical symptoms are fairly clear and by the process of careful elimination there should be, if sufficient time is

taken in the clinic, but little difficulty in diagnosis. Furthermore, those of a considerable experience declare that after close observation of a patient and without attempt to analyze or describe his symptoms they are able to "feel" that he is suffering from dementia praecox. Unscientific as such deductions may be, the fact remains that there are in dementia praecox certain characteristics which may be quickly detected.

Whether or not we perceive the "shut-in personality" spoken of by August Hoch, Freud's "auto-erotism," Janet's "perte du sens de la realite," "dream state" or our own idea of the symptom complex, we recognize the introspective personality of the paranoid with his inability to adapt himself to material ends, and with his fits of abstraction, his abnormal sensitiveness and suspicious tendencies.

Equally apparent are the characteristics of the catatonic, his resistance against the most natural instincts and impulses, his apparent determination to oppose interference, his muscular tension, mutism, automatism, stereotypy and verbigeration.

In the hebephrenic, silliness, mannerisms and dementia are in evidence.

With increasing knowledge of mental and nervous diseases comes a fuller observance of the accompanying somatic disturbances. These however are not constant or pathognomonic of dementia praecox. Possibly they are more constant in the catatonic form and briefly consist of disorders of motility, sensibility, tendon reflexes, general nutrition, secretions, pupils, circulatory apparatus, the digestive and urinary tracts.

More difficult of discernment are the early conditions, the insidious change of character, for many of these cases have manifested an abnormal individuality since childhood and it is in its incipency or this pre dementia state that we must detect the disease if we are to benefit these patients. It is with the question of benefit to this most unfortunate class of individuals that we are to deal in the present communication.

Until quite recently the treatment of these patients has been unsatisfactory owing to the fact that the early symptoms were not recognized and the disease but illy understood by friends and local physicians. Because of this the patient did not enter the hospital until the disease had made considerable progress and his friends

had become tired of caring for him at home. Upon entrance into the hospital his case was usually regarded as hopeless and little effort was made to relieve his condition. If a catatonic he was allowed to remain in solitude if he chose, reveling in the indulgence of his ego, taking or rejecting food at will and retaining the excretions of the body, thereby lowering his resistive powers and rendering him an easy prey to disease.

If a hebephrenic or paranoid he was given some routine asylum work and without any systematic training he was allowed to follow his own inclinations. The chief feature of his treatment seemed to be custodial care.

Recently theories have been advanced which have revolutionized our ideas relative to the treatment of these cases. It has been demonstrated that psychoanalysis has been beneficial in some of the so-called functional nervous diseases; but it is too early to determine whether or not disease dependent upon degenerative lesions of brain substance will yield to such procedure.

It is fairly well understood that in praecox cases a degeneration of association fibers occurs, and we would not presume to say that by proper discipline or re-education of the mind, these degenerated fibres might not regenerate, at least to some extent, or new association tracts be established.

Those who have endeavored to argue insane patients out of their delusions, will agree that it is a useless procedure; yet, we would not discourage those egotists who would lead egoists out of their madness, and perhaps a combination of such efforts with other methods might prove successful; but it is probable that by this means alone it would require a lifetime for one psychoanalyst to reduce the ego in a few patients.

The world-wide attention of psychiatrists has recently been called to the work of Abderhalden, Fauser, Wegener, Kafka and others abroad and Simon in this country, concerning ferments in the blood of praecox cases against sex glands and various other substances of the body. Although it is yet too early for the compilation of reliable statistics, we are filled with enthusiasm and trust that the way has been pointed out which will lead to the achievement of definite results through the study of these important physiologic principles by means of "organ diagnosis."

the fundamental law of the land and of the majority of the states which require that commitment shall be made only by a judge of the court after due investigation which should include the testimony of two physicians made after examination of the person in question who should always have a chance to contest the commitment.

However, since outbreaks of insanity often occur suddenly or an insane person may suddenly commit an overt act which may require for his own good and the safety of the public immediate action, some provision should be made for the immediate and temporary apprehension of insane persons for a limited period of time, a few days or a week; and evidence should be presented to the court as quickly as possible; and he should be subsequently committed in the usual manner.

If a person committed to the asylum because of insanity feels that he should have redress he may, under the present law of Pennsylvania, bring suit against the two physicians who committed him to the asylum. And I know of at least one instance where two physicians who committed an insane person to an asylum were afterwards compelled to defend suit brought against them by the person so committed who alleged that she was not at any time insane. If such persons feel aggrieved, the burden of defending such a suit should not be upon the two physicians who have signed the certificate, but the state or county should bear the burden. And this would be the situation if the law were so changed that commitment were made by judges of court instead of by two physicians as is now the case in Pennsylvania.

Voluntary commitment of insane persons by themselves is an anomaly and cannot stand a logical and legal scrutiny. A man who is sound mentally may make a reasonable contract; but if a man is insane, it is a farce and against all rules of logic to permit him to make a written contract depriving himself of his liberty. No other contract by an insane man is valid. Why then should an insane man be allowed to make one of the most important contracts that can be made, namely one dealing with his personal liberty, the same to be accounted as valid and legal?

I would submit that the ideal insanity law should contain the following provisions:

1. The insane person should always be com-

mitted by a judge of the court and not by any inferior county or state official.

2. The judge should be allowed to make such commitment on the sworn certificate of two physicians, who have been in practice at least five years and upon the signed request of a near relative or county official.

3. Provisions should be made that the alleged insane person or friends acting for him may demand and be allowed a hearing before a properly constituted legal tribunal to determine the question of his insanity; and only in cases like this should the insane person receive a summons or be required or permitted to appear at the hearing.

4. Emergency commitment should be provided for pending a commitment in the usual manner.

I would advocate that this Association of Alienists appoint a good working committee, which ought not to be too large, to study this whole situation to endeavor to improve upon and overcome the flaws in the present existing laws. Such a committee should have the co-operation of two or three able and philanthropic lawyers. If such a committee did its work well it might be in a position to make a report which would be of the greatest possible help to the several states of the Union in offering hints by which they might improve their existing laws. I recommend the appointment of such a committee of physicians and lawyers.

DEMENTIA PRAECOX WITH SPECIAL REFERENCE TO TREATMENT.

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Since the advent of the term dementia praecox so much has been written and so little valuable knowledge gained in regard to the treatment of its victims that we have felt some aversion to writing upon a psychosis which has been the subject of so much controversy. Some cheer is found, however, when the sum of our knowledge has been contemplated.

Disregarding the borderland and hysterical cases which result in recovery, and confining ourselves to a nosological conception of the group, we may say that the clinical symptoms are fairly clear and by the process of careful elimination there should be, if sufficient time is

taken in the clinic, but little difficulty in diagnosis. Furthermore, those of a considerable experience declare that after close observation of a patient and without attempt to analyze or describe his symptoms they are able to "feel" that he is suffering from dementia praecox. Unscientific as such deductions may be, the fact remains that there are in dementia praecox certain characteristics which may be quickly detected.

Whether or not we perceive the "shut-in personality" spoken of by August Hoch, Freud's "auto-erotism," Janet's "perte du sens de la realite," "dream state" or our own idea of the symptom complex, we recognize the introspective personality of the paranoid with his inability to adapt himself to material ends, and with his fits of abstraction, his abnormal sensitiveness and suspicious tendencies.

Equally apparent are the characteristics of the catatonic, his resistance against the most natural instincts and impulses, his apparent determination to oppose interference, his muscular tension, mutism, automatism, stereotypy and vigeration.

In the hebephrenic, silliness, mannerisms and dementia are in evidence.

With increasing knowledge of mental and nervous diseases comes a fuller observance of the accompanying somatic disturbances. These however are not constant or pathognomonic of dementia praecox. Possibly they are more constant in the catatonic form and briefly consist of disorders of motility, sensibility, tendon reflexes, general nutrition, secretions, pupils, circulatory apparatus, the digestive and urinary tracts.

More difficult of discernment are the early conditions, the insidious change of character, for many of these cases have manifested an abnormal individuality since childhood and it is in its incipency or this pre dementia state that we must detect the disease if we are to benefit these patients. It is with the question of benefit to this most unfortunate class of individuals that we are to deal in the present communication.

Until quite recently the treatment of these patients has been unsatisfactory owing to the fact that the early symptoms were not recognized and the disease but illy understood by friends and local physicians. Because of this the patient did not enter the hospital until the disease had made considerable progress and his friends

had become tired of caring for him at home. Upon entrance into the hospital his case was usually regarded as hopeless and little effort was made to relieve his condition. If a catatonic he was allowed to remain in solitude if he chose, reveling in the indulgence of his ego, taking or rejecting food at will and retaining the excretions of the body, thereby lowering his resistive powers and rendering him an easy prey to disease.

If a hebephrenic or paranoid he was given some routine asylum work and without any systematic training he was allowed to follow his own inclinations. The chief feature of his treatment seemed to be eustodial care.

Recently theories have been advanced which have revolutionized our ideas relative to the treatment of these cases. It has been demonstrated that psychoanalysis has been beneficial in some of the so-called functional nervous diseases; but it is too early to determine whether or not disease dependent upon degenerative lesions of brain substance will yield to such procedure.

It is fairly well understood that in praecox cases a degeneration of association fibers occurs, and we would not presume to say that by proper discipline or re-education of the mind, these degenerated fibres might not regenerate, at least to some extent, or new association tracts be established.

Those who have endeavored to argue insane patients out of their delusions, will agree that it is a useless procedure; yet, we would not discourage those egotists who would lead egoists out of their madness, and perhaps a combination of such efforts with other methods might prove successful; but it is probable that by this means alone it would require a lifetime for one psychoanalyst to reduce the ego in a few patients.

The world-wide attention of psychiatrists has recently been called to the work of Abderhalden, Fauser, Wegener, Kafka and others abroad and Simon in this country, concerning ferments in the blood of praecox cases against sex glands and various other substances of the body. Although it is yet too early for the compilation of reliable statistics, we are filled with enthusiasm and trust that the way has been pointed out which will lead to the achievement of definite results through the study of these important physiologic principles by means of "organ diagnosis."

We now see the pendulum swinging back to toxic substances in the blood, and we may soon learn of the demonstration of ferments in the blood by means of the ultra-microscope, refractometer, polarization and even by means of stains.

Already there are remedies for dementia praecox in the form of such substances as nucleins, etc., which appear to produce an artificial leukocytosis.

Every psychiatrist of experience has noted the apparent improvement in praecox cases following typhoid fever, and many have attributed such phenomena to the fixation of certain biological constituents which previously existed in the blood of such patients. A few have thought that certain products resulting from typhoid fever have been instrumental in terminating the existence of various native toxic substances.

We no doubt will soon hear more of the anchoring of these toxins and ferments. In fact, in the light of the knowledge gained by study of the Wassermann reaction in syphilis and Abderhalden's test in pregnancy, we are able to comprehend the possible chemo-biological changes which may occur in dementia praecox.

If we are prepared to believe that life is due to a chemical reaction, we must also admit waste products and substances resulting from degeneration of any kind whatsoever may react as chemical bodies with certain normal constituents of the individual or may exist in the free state as toxins in certain tissues or fluids and thus interfere with the function of vital organs. The rational procedure would be to remove the cause; i. e., prevent the degeneration of association tracts and other pathology in the brain; but since this involves the question of the inheritance of predispositions of determiners from our ancestors and returns to the gloomy prospects from social regulation, we must turn from it and await the accomplishments of future generations. Reluctantly we are forced to begin at the other end and endeavor to build a new man from the products which have caused his disintegration.

Granting the possibility of placing receptors in the blood, to combine with the toxins, the question arises, "how will this affect the source of the toxin, and will the degenerated brain substance continue to pour out its products, thus rendering necessary an indefinite continuance of

the treatment?" It is possible that this and like questions may be answered during the course of this meeting.

Recently a few writers have indicated their ability to discover evidence of syphilis in dementia praecox by means of the Wassermann test and cell count of the spinal fluid. Further research along this line, especially with reference to the study of syphilis in children, may result in useful knowledge in this connection.

Our serologic work at the Independence State Hospital, though somewhat limited as to number of cases of dementia praecox tested by Wassermann, Noguchi's modification of the above test, cell counts, globulin, etc., carried out with the strictest observance of standard rules and formulae, does not convince us that the spirochaeta pallida plays a part in the disease under discussion.

Of fifty cases of dementia praecox examined there were sixteen male hebephrenics and eight female, four male and six female catatonics, thirteen male and three female paranoids. Of these there was one positive globulin butyric acid test in a male hebephrenic.

There was no increase in the white cells of the spinal fluid in any of the cases. (Above three).

There was a positive Wassermann in the fluid. 2 mm. in one male catatonic.

There was a positive Wassermann of the blood serum in one female hebephrenic, .2mm and .1mm.

There was a positive Wassermann in blood serum of four male paranoids, .2mm and .1mm, also one female paranoid.

Fehling's test in these cases yielded nothing definite.

It is probably not unreasonable to presume that syphilis may exist in conjunction with this disease.

We will be far from the goal if we think that a hypodermic injection will cure dementia praecox. It is not so easy to regenerate diseased brain substance.

In the abstract, possibly the best treatment at our disposal today consists of free elimination by means of the prolonged warm bath and normal salt enemas. We have witnessed wonderful results from the use of normal salt used in this way, not only in dementia praecox but in other intoxications with excitement.

The symptoms of catatonia are frequently relieved promptly by this means, and where albumin occurs in the urine it rapidly disappears. Hypodermoclysis is of value in many cases, especially where there is marked cyanosis. Salt rubs are also of benefit in selected cases; the Scotch douche, electric light bath and direct sunlight in others.

The benefits derived from the psychic effect secured by the use of many of these mechanical appliances is not to be ignored.

Action! Action of mind and body, persistent and tiring should be the watchword in dementia of this character. It is therefore advisable in all hopeful cases to provide an intelligent, special nurse who has had training in this important subject, to teach the patient self reliance, self-control, and to separate him from his inclinations before the ego becomes too firmly fixed. Action! Training to develop new association tracts. He should be trained first to play games and to be sociable; to take interest in good reading—the biographies and memoirs of men who have risen beyond the constitutional restraints of the mind; to think and to do right. The moving picture may be made instructive and beneficial to this class.

Lastly, action in the form of useful employment.

The regularity of the baths, treatments, amusements, training, occupation and sleep; the sequence of all his endeavors being the foundation upon which his treatment must rest.

Medicines and tonics and eliminatives may be used to advantage, but hypnotics or sedatives, never.

At present much is being said of the advantageous use of certain extracts of glands, as thyroids, testicle, ovary, pituitary, supra-renal, etc. We are anxious to hear more of it.

Finally, the diet is important. No special articles of diet are demanded, the condition of the patient being the indicator. The function of the gastro-intestinal tract is changeable, and such food as agrees with the patient should be given. This should be selected with discretion. The idea of strictly vegetable or meat diet is absurd in the extreme. Infrequently it may be necessary to pass the stomach tube through the nose when patients refuse food for several consecutive days. Two quarts of milk and six eggs

should be given daily, and when this treatment is of necessity continued for a considerable period, lemon juice one ounce, grain infusion and beef juice should be added.

THE ABDERHALDEN REACTION IN DEMENTIA PRAECOX.

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For a number of years many internists, to whom should be counted neurologists and psychiatrists, have believed that some affections of the nervous system and conditions provoking faulty mental out-put, were exogenous in nature, i. e., extra-cerebral in origin.

As early as 1895 at the Baltimore meeting of the A. M. A. the writer delivered an address on "The Toxic Origin of Nervous Diseases"¹ and shortly afterwards published a paper on "Toxicity of Neurasthenia, Hysteria and Epilepsy."² During the almost 20 years since that time I have seen little cause to change the views then expressed, and have again and again emphasized the opinion that nervous and mental diseases are frequently caused by, or are visible expressions of, the effect upon the brain of certain toxins generated within the body, that is endogenous to the organism but not necessarily endogenous to the brain itself. There is nothing unique or remarkable about such an opinion, for every observant physician has noted, time and again, the effects of systemic empoisonment upon the brain and its functional expression, mind.

The fundamental pathology of many nervous-mental syndromes has long been regarded as basically toxic, and the actual organic demonstrable changes within the central nervous system and other body organs, have been properly looked upon as tissue reactions, secondary to longer or shorter existing toxic states.

It is no new thing to construe the finer pathology, even of our best-studied psychosis, the tabo-paretic syphilid, as the morphologic equivalent of long-continued exogenous infection.

The clinical-neurological and mental manifestations of myxedema, cretinism, exophthalmic goitre, Addison's disease and various intoxica-

tions have long been recognized as non-cerebral in causation. It is small wonder then that the neurologic-psychiatric world has eagerly greeted the latest definite advances brought to scientific medicine by research in physiologic chemistry. We have been prepared by the splendid achievements of Ehrlich, Wasserman, Noguchi and others in Serology to become receptive to skilled laboratory interpretation of clinical phenomena, entirely divorced from mysticism and pseudo-psychology or the mantle of religion—so-called.

Since Abderhalden first promulgated his theory of "Abwehr fermente"³ or protective body ferments and its practical application to diagnosis there has been a profound spread from its original field, the placental reaction of pregnancy. But two short years have elapsed since Abderhalden's epoch-making revelations and in that period investigations as to the value of his observations have been accumulating flood-wise. At the present time scientific Europe, especially Germany, is divided into two camps on the efficacy of the Abderhalden tests. The field of its application has broadened enormously. Cancer research has received decided stimulus under its influence and psychiatry bids fair to attain through its teachings an unexpectedly firmer basis diagnostically, prognostically and possibly therapeutically.

In this country, too, some work is being done, on the one hand to corroborate the finding of Abderhalden, Fauser, Wegener, Kafke and others abroad and, on the other, to widen the scope of its utility.

In a matter of so very great importance it were well to temper enthusiasm with judgment and critical analysis. The doctrine of protective ferments strikes an exceedingly sympathetic chord. It meets adequately, more than any other, it seems to me, the ideas we have all vaguely been entertaining for many years and, coming as it does on top of the recent advances in the diagnosis and treatment of syphilis, we are ultra-receptive and apt to be carried off our intellectual feet by too sanguine expectations and faulty interpretations of tests by persons wholly or ill-prepared to make such elaborate tests.

The limits of this paper preclude any exhaustive résumé of the work already done in the application of Abderhalden's reaction to psychiatry, notably dementia praecox, nor is it safe to crit-

icize all of the published reports in the absence of specific knowledge as to the technic employed by the various observers. In the very nature of things we must await rather conflicting revelations, for no small number of enthusiastic persons, who may deem themselves competent serologists, are going to rush into print with their experiences, unmindful of the fact that a method so elaborate, so delicate, so surgically "nice" must be free from every technical fault, if it serves to prove anything at all.

It requires very much more than the care of an ordinary chemist or even a serologist. Perfect understanding of the principles underlying Abderhalden's ideas, backed up by faultless materials, faultless apparatus, faultless dialysers, absolutely clean instruments, hands and gloves in a laboratory as aseptic as a modern operating room and undivided, patient technical skill are pre-requisite and essential to the final reliability of the results. It is perfectly safe to assert that the further development of this method should rest in the hands of the best physiologic chemists rather than in those of serologists, unless the latter be exceptionally well-equipped for such work, not only as to laboratory facilities, but also in practical skill.

Furthermore, really accurate clinical observation and data should be associated with the laboratory work. The temptation to make clinical and bedside work "fit in" with laboratory findings, regardless of their accuracy, lies very close.

Looking back over the period during which the Abderhalden dialysis reaction has found practical application in Psychiatry we find Fauser⁴ pointing the way. In May, 1913, he announced his conclusions at the meeting of the German Psychiatric Association based upon the examination of 250 cases showing clinical evidence of various psychoses, claiming to have definitely established a positive dialysis reaction with sex glands in dementia praecox only, no other form of mental affection revealing a like result. Moreover, male patients reacted only with antigen from testicle and female with ovarian antigen only. The sera of patients other than those suffering from clinical dementia praecox gave negative reactions quoad sex gland antigen alone, but positive tests were established with substrates from brain cortex and thyroids in several forms of mental disease.

In dementia praecox also positive protective ferments were noted with brain cortex and thyroid; cleavage of brain cortex being especially noticeable in well-advanced cases of dementia praecox. Fauser's later reports indicate that he still substantially holds the following view—that patients suffering from clinical signs of dementia praecox give positive dialysis reactions to their respective sex gland antigen as a rule; that they frequently also give positive nihydrin tests with thyroid antigen and, in the later stages of the disease, with brain cortex antigen as well. Occasionally cases clinically warranting the diagnosis dementia praecox, failed to react positively with sex gland substrate, but gave positive results with thyroid and brain cortex or both. These patients showed evident enlargement of the thyroid gland.

In paresis, so-called, he finds protective ferment in the serum with brain cortex uniformly, but none for sex-gland, and often positive evidence of the presence of ferments for liver and kidney.

In certain psychoses classed as functional, notably manic-depressive and hysteroid, no sera ferments with any organ antigen were established.

Following Fauser comes a no small number of reports from other quarters. Wegener⁵ gives an elaborate record of several hundred cases; his experience is, in brief: Negative results to the Abderhalden test were constant in simple hysteria, the manic-depressive group and chronic paranoia. In 25 cases of the depressed (melancholy) type, cleavage of liver was found and sometimes sex gland, but these cases he is inclined to consider as of the dementia praecox type, clinically obscured by depression. In epilepsy (61 cases) positive ferment reaction was found immediately consequent to seizures, and also between attacks in cases which had progressed to dementia, with brain cortex fundamental. In multiple sclerosis (8 cases), senile dementia due to arterial changes (12), chorea (6), brain and spinal tumors (15), alcoholism (8), paralysis agitans (1), meningitis (10), the tabo-paretic syphilid (67) and after narcosis (8) there were demonstrable positive reactions with brain cortex.

Wegener divides his dementia praecox cases into (a) simple, (b) with Katatonia (c) with

definite deterioration (i. e. real dementia praecox). He observed positive sex-gland reaction in all cases (229); in simple hebephrenia (121) cases, sex-gland cleavage only; with Katatonia (12 cases) thyroid plus sex-gland; in cases (96) showing deterioration of brain cortex cleavage in addition to sex-gland was noted. Wegener concludes that his observations fully substantiate the findings of Fauser.

Confirmatory reports emanate also from Mayer⁶ with 47 cases, Fisher⁷ (24 cases), Roemer and Bundschu⁸ (36 cases), Kafka⁹ (100), Beyer¹⁰ (6 cases), Theobald¹¹ (sex-gland 53 per cent., cortex 63 per cent., thyroid 69 per cent. in dementia praecox), Fuchs and Freund¹² (23 cases tested with sex gland and pancreas). Of these 6 manic-depressive gave feeble reactions; of 12 dementia praecox all positive with pancreas and 11 with sex gland 1 being negative; of paresis (7 cases) five gave pancreas reaction. The consensus of opinion of the above observations supports Fauser's claims.

Other investigators, among whom may be mentioned Willige¹³ of Halle, Allers¹⁴ of Munich, Neue¹⁵ of Greifswald, Hauptmann & Bumke¹⁶ of Freiburg, have been unable fully to substantiate the findings of Fauser, even in some instances disputing the correctness of his observations, notably in dementia praecox, but every one of them found positive evidence of cleavage products in some form with substrate of brain cortex, thyroid, sex gland, hypophysis, body organs, thus supporting Abderhalden's original concepts, but not establishing, beyond question, the dictum of Fauser that sex gland cleavage was pathognomonic of dementia praecox alone. In fact, positive dialysis with sex gland was determined in several instances of paretic syphilis, cerebral arteriosclerosis, epilepsy and even in perfectly normal healthy male attendants (7 out of 9 with testicle, thyroid and pancreas by Neue in Schroeder's Clinic at Greifswald).

Willige records 2 positive reactions with hypophysis in 2 cases of hypophyseal tumor, and one of brain tumor which reacted with thyroid but not with brain.

In this country undoubtedly several foci of observation are established or are being established.

As yet, so far as I know, none of the leading institutes of research, like the Rockefeller, are conducting any experiments along this line. A

recent letter from the Rockefeller informs me that no effort has yet been made there to prove or disprove the validity of Abderhalden and Fauser's contentions.

Doubtless in several of our psychopathic institutions and in the research departments of some hospitals and schools Abderhalden tests are being carried out. Some commercial laboratories are advertising their preparedness to do this work. Individually quite a number of reports have made their appearance in medical journals. Among the most active and earnest workers in this country must be rated Bayard Holmes,¹⁷ probably better versed in the understanding and technic of Abderhalden's ideas than anyone in the United States. His articles upon this subject are exceedingly clear and illuminating. They deserve the most careful critical attention, even though he does not report any series of cases in detail.

The latest contribution to the literature of the Abderhalden test in psychiatry with special reference to Fauser's claims is that of Simon,¹⁸ who records his observations from the laboratory of Clinical Pathology at the College of Physicians and Surgeons of Baltimore with material from the Sheppard and Enoch Pratt Hospital, in all 106 cases, tested against sex gland, Basedow thyroid and cortex with a carefully detailed description of the technique followed.

A summary of Simon's conclusion is substantially this: Sex gland reaction may be obtained in nearly, if not all, cases of dementia praecox at some stage of the disease, but the reaction is not specific of dementia praecox, as Fauser contends. He found no sex-gland reaction in paretic syphilis, but he did observe positive results with sex gland substrate in 4 out of 25 cases of manic-depressive, 2 out of 10 cases of involutional depression, 2 out of 4 cases of constitutional psychopathic states, 2 out of 2 cases of toxic (nephritic) psychoses and 4 out of 5 alcoholic intoxications. In 10 out of 15 conditions designated "doubtful diagnosis" sex gland cleavage was positive. However, Simon, like all other investigators, found the most substantial support for the Abderhalden theory in itself and could emphasize the conclusion that "in dementia praecox a positive reaction is the rule and that in the purely functional psychoses it is the exception," which certainly lends additional evidence to the original Fauser

claim, namely, that there lies a definite specificity in the Abderhalden test or reaction for dementia praecox, with a substrate of the respective sex gland, the testicle for the male serum, the ovary for the female serum and that no such specific reaction occurs in other psychoses.

That the teachings of Abderhalden are certain to have an important bearing upon scientific medicine there can be scarcely any doubt. Not alone is this true from the diagnostic and differential diagnostic view point but the prognosis of any given case seems to stand in close relationship to the character of a positive reaction and its degree of intensity. In conditions giving positive evidence of cleavage with brain cortex fundament or substrate, as shown by the presence of peptone and amino-acid in the dialysate with serum from any given patient the prognosis becomes definitely worse. In cases in which brain cortex digestion is absent, the outlook may yet be regarded as hopeful—provided that out of the Abderhalden doctrine some appropriate therapy shall arise. (Bruse, Dide, Donath and others have reported cures or improvement through induced hyperleucocytosis.)

Comes now Halvar Lundvall¹⁹ of Lund, Sweden, with a remedy composed largely of nuclein with a little arsenic and some sodium cinnamate prepared for deep injection and designed to induce leucocytosis. Lundvall reports apparent cures in dementia praecox, and remarkable improvement in seemingly hopeless cases, but the time which has elapsed since his injection treatment has been in use is too short to predicate the end result. Dr. Holmes will doubtless tell us more of this. Its employment appeals to me as rational in relation to the condition of the blood of dementia praecox patients as observed by Lundvall (i. e., polycythemia and leukopenia when patient is failing, and hyperleucocytosis with normal number of red corpuscles when patient is improving), but whether the disfunction of the various glands involved, or any actual pathology of such glands, if it exists, can thereby be permanently affected or relieved remains a problem for future solution.

The whole Abderhalden Lehre presents a deeply interesting study. It opens up a number of absorbingly elementary questions, the answers to which involve profound consideration. Its possibilities are many, its practical application may

and probably will prove a great advance in scientific medicine, more far-reaching than the work Ehrlich has bequeathed to us. It brings strikingly into the foreground the necessities of present-day medical requirement, the fine distinction between the skillful, learned diagnostician and the haphazard practitioner. It emphasizes the already well-marked passing-away of inexact, inaccurate work and teaching, the great need of co-operation between skilled, trained laboratory workers and careful, accurate, keen clinical diagnosticians.

Scientific medicine of today requires much more than a loose connection between clinician and laboratorian and, furthermore, it requires laboratory equipment and knowledge of the highest order. The ordinary laboratory with comparatively inexperienced chemists, serologists and hematologists who may do very conscientious, but inaccurate, work will not merit our confidence. Some of the commercial laboratories seem to be well-equipped and well-conducted, but just how accurate and scrupulously scientific their work is, remains a matter of doubt. The returns from some tests may be perfectly trustworthy, but the confidence of the clinician must assuredly be shaken when reports from different laboratories upon like specimens are conflicting. At the present most internists and surgeons and all physicians in ordinary active practice are compelled to rely upon the report of laboratorians with whom they have no close relations, of whose technical skill and unfailing care they have no certain knowledge and yet whose dictum they perforce blindly follow, sometimes to the detriment of their patients, more often probably to their advantage. The wise clinician exercises a certain control over the laboratory reports he receives and displays good judgment when he carefully weighs the laboratory returns in the light of his clinical experience and diagnostic acumen. And yet the very best internist must give heed to the dictum of his laboratorian even though he finds it difficult, often, to reconcile the laboratory report with his bedside or other observation in any particular case. Some private laboratories are skillfully conducted, but the ordinary one, except for simple tissue and blood and urinary examinations, is a farce. The same thing may well be said of the general run of corporate, municipal, institutional, State and, often enough, hos-

pital laboratories when it comes to the more complicated tests, such as the Wassermann, where sources of error are common and where so much depends upon accuracy. What then may we expect from the Abderhalden!

In reality this test may be no more difficult to carry out than that of complement fixation, but the sources of possible error are many and some, apparently trivial in themselves, utterly nihilistic of accuracy in effect.

Careful study of the accumulated Abderhalden literature to date, given forth by acknowledged, capable, experienced clinicians, reveals doubtful laboratory research and one cannot but be impressed with the thought that ere absolutely reliable data can be acquired upon this most important advance in scientific medicine, the laboratories upon which the burden of proof must lie shall measure up favorably to the high standard of the institution of research, whence they originally emanated to meet the full force of analytic scrutiny.

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NOTE.—Since the above was written, there has appeared a complete bibliography of the Abderhalden Reaction, compiled by Dr. Bayard Holmes, of Chicago, in the Index of Oto-Laryngology, May, 1914. This list is entirely too long for reproduction here and the reader is referred to this valuable contribution of the entire Abderhalden doctrine.

THE DIAGNOSIS AND TREATMENT OF
DEMENTIA PRAECOX, AS EXHIBITED
BY THE EXPERIENCE OF THE
LAST TWO YEARS.

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CHICAGO, ILLINOIS.

Dementia praecox is a condition of very unusual and bizarre symptoms. Cases of this disease verge all the way between the most pronounced and easily recognized catatonias to the most subtle and hardly distinguishable paranoiacs. At times it so resembles general paresis that one is tempted to pronounce it of syphilitic origin without any serologic or other tests. In other cases it is so subtle and deceptive that it might readily be mistaken for a hysteria or a manic-depressive. The larger one's experience goes and the more careful his study of the early and the late manifestations, the less satisfied he is with any symptomatic or clinical diagnosis.

It is noticeable that Kraepelin has held to his original group, but that during the past year or two he has subdivided this group into many sub-groups that have perhaps clinical value, and will in the end give some clinical statistics helpful in prognosis and possibly in treatment. The question of the entity of dementia praecox as a pathological proposition has been greatly simplified during the past two years by the study of the blood both from its morphologic and its chemical nature. The study of the cell elements of the blood has developed the fact that in all cases of dementia praecox there is a period or a succession of periods in which the red cells are enormously increased, running all the way from 5,500,000 to 8,000,000; while at the same time the relative number of the white blood corpuscles is diminished even below the absolute number of a healthy individual; thus, when the red count is 7,500,000, the white count is frequently below 8,000, and in one instance in my own experience a red count of 6,000,000 was attended for more than six weeks with a white count between 4,000 and 6,000. Such a pronounced relative leucopenia is certainly inconsistent with health. This count was made upon a patient who was under the most ideal sanitary conditions. He was well fed, his elimination was carefully attended to and he was given large quantities of liquid food with the purpose of

diminishing the concentration of his blood and eliminating the coincident cyanosis and catatonia.

The early studies of the blood in various conditions of institutional cases showed that the fluctuations which are so common in cases of dementia praecox were preceded by an increase in the number of leucocytes. Upon these observations Bruce made extensive studies, and many of his school have attempted to make a prognosis by the presence of leucocytosis or leucopenia.

It is extremely unfortunate that the study of the morphologic elements of the blood have not been coordinated with studies in the spectroscopy of the blood, especially the presence or absence of the sulph-hemoglobin and the other methemoglobins. It is still important to make these studies since the great significance of sulph-hemoglobinemia in its relation to the colon bacillus septicemia.

The concentration of the blood is sometimes attended by an absolute diminution in its quantity. Studies in relation to the absolute quantity of the blood in dementia praecox have not, so far as I know, been made to co-ordinate with the number of the morphologic elements. There are some reasons to believe that the absolute quantity of blood is diminished in dementia praecox, and that the cyanosis is in some manner related to the diminished quantity and the diminished fluidity of the blood, resulting from a sort of dehydration.

From a diagnostic standpoint, the application of the defensive ferment reactions of Abderhalden have been the most interesting contribution to our knowledge of this condition. For the first time we are able to state positively that dementia praecox is a symptom of some disease, and that this disease or these diseases are of a toxic nature, and that the toxic condition of the blood is attended by a destructive process in various organs of the body. In December, 1912, Fauser published his first paper on the study of the defensive ferments of 84 healthy persons and insane patients, and he showed that in the cases of manic-depressive insanity and healthy persons defensive ferments were rarely recognized for any organ of the body, that in cases of dementia praecox defensive ferments were almost uniformly discovered in the blood serum against the

albumin of the testicle or the ovary, against the cerebral cortex, and in many cases against the thyroid or other glands of internal secretion, and that this was the case even in very old women and very old men in whom the natural functions of the genital glands might be supposed to have come to an end. In his succeeding paper, published in February, 1913, this work was still further carried on, and a theory of the dysfunction of the genital glands as a source of the toxemia was added. We are not at all interested in the theories of the cause of dementia praecox at this time, but only in regard to the assumed and asserted fact that the defensive ferment reaction is diagnostic of this condition. We would call attention to the examination of 600 patients and healthy persons by Wegener, of Jena, where Fauser's methods were carried out on a larger scale with practically identical results, and also a long series of examinations of the same sort in the psychiatric clinics of Germany and Austria. It is useless to refer to them here, and they may be looked up by anyone interested in the subject. It is not, perhaps, undesirable, however, to refer to the latest papers of Kastan, of Koenigsberg; Kafka, of Hamburg; Plaut, of Munich and Hilfert and Rosental, of Heidelberg, presented before the recent meeting of psychiatrists at Strassburg, in May, 1914. Kastan's paper is largely devoted to the study of the significance of the reactions for the defective ferments, which he shows to be present in practically all cases of dementia praecox, against the genital glands and in severe cases the cerebral cortex, the thyroid and the adrenal tissue. He looks upon the picture as presented by the Abderhalden reaction as very suggestive of dietetic, medicinal and physical treatment, including x-rays, sunlight, and applications of heat. Kafka, who had previously published a very long series of articles from the Hamburg-Friedrichsburg clinic, both upon the experiments on animals and the sources of technical error, reiterates the necessity of following out without any deviation the original methods of Abderhalden, and protecting the laboratory from errors by frequent and rigid testing out of the dialyzers and the invariable proving of the fundamentals before each and every examination. He recounts in his paper the results of four hundred examinations for diagnostic purposes. Among these were 114 cases of dementia praecox,

18 of manic-depressive insanity, 20 of other psychopathies, 17 of general paresis, 5 of other forms of cerebral syphilis, 17 of genuine epilepsy, 5 of senile psychosis, and a considerable number of other organic diseases of the central nervous system. In all of these there was some catabolism of the glands of internal secretion recognized by the presence of their defensive ferments in the blood. In 27 healthy persons only one showed any catabolism for brain cortex, none for the genital gland, none for the thyroid, none for the adrenal, and none for the spleen. The cases of dementia praecox, 114 in number, all gave the reaction to the sexual glands, 79 per cent to the cerebral cortex or some other part of the brain, 40 per cent to the thyroid, and 25 per cent to the adrenal gland. Many of these cases gave reactions to several of the albumins of the glands of the internal secretions. In the 18 cases of manic-depressive insanity there was a catabolism of brain cortex in 9 cases, of the sexual glands in absolutely no case, and the adrenal gland in 4 cases; the thyroid in one case. It is not consistent with our purpose to go on and give a further account of his very valuable research, except to say that he urges the most careful technique in making these examinations, and the use of as large a number of fundamentals as possible. We note, however, that Kafka does not use in his cases of insanity fundamentals made from the organs connected with the digestive tract, and we believe that this is a decided error, because Wegener, Rundschauch, Römer, Deutsch, and Kastan have found that the pancreas was frequently disturbed in cases of dementia praecox. In my own examinations of dementia praecox serum the fundaments of the pancreas has been positive every time. Plaut, of Munich, looks upon the reaction as absolutely useless and he quotes very liberally from the criticisms of the method made by Michaelis, who has alone criticized the Abderhalden theory and the Abderhalden method from the standpoint of a peer. He mentions in his discussion the fact that he has had sera examined by Fauser and by Kafka and by Lampé, besides 65 cases examined in his own laboratory, and that he failed to get one hundred per cent of positive reactions to the genital glands in dementia praecox and one hundred per cent of negative reactions to the genital glands in manic-depressive insanity. To me,

it seems that the discussion of Plaut may be very helpful in holding the enthusiasts of this reaction to the ground, but it is irrelevant, and the meager reports which he made on fifteen cases do not seem to me to indicate anything but loose, inaccurate methods, with very many errors, which can almost be pointed out from the printed page alone. Taking the work of Kischberg, Hilfert and Rosental together, we may say that there are no defensive ferments in 97 per cent of healthy individuals, as they come to the laboratory to give blood for controls, and that in the three per cent that show positive reactions, there are all the chances of error which the presence of peptone in the blood serum and the accidents of the laboratory furnish. This would probably reduce the number of persons actually harboring defensive ferments in their blood to less than one and a half per cent. Now, in the cases of manic-depressive insanity half, at least, furnish no positive reaction to any one of nineteen fundamentals or the genital glands. This must, of course, be looked upon as conclusive of the value of the defensive ferment reaction, when we consider that in only three per cent of all cases of dementia praecox examined by Fäusser, Wegener, Deutsch, Kafka, Römer, Rundschau, Neue, Fischer, Hilfert, Rosental and Kirschberg there has been failure to show reaction to the genital glands; to the ovary in females, to the testicles in males.

Our experience with the Abderhalden reaction in the two other directions in which it has been used for diagnostic purposes, namely, in obstetrics and in malignant disease, teaches us that a time comes in the supersaturation of the blood with the toxic elements of the disease or the condition when the blood fails any longer to furnish a defensive ferment; in other words, it is overcome. Abderhalden has recently shown by experiments upon animals that this supersaturation is readily produced in animals by the repeated injection of increasing doses of the foreign or toxic albumin. It would not seem unlikely, then, that many patients with this disease which we term dementia praecox would be so over-poisoned by the toxin that the blood would be unable to any longer furnish a quantity of defensive ferment sufficient for a diagnosis, but such cases have not so far been reported.

It has been noted, especially during the last

two years, that an increasing number of dementia praecox cases recover, and the evidence is of long standing that recovery in these cases is preceded by an attack of some serious acute infection or some protracted chronic pus microbe disease. It has also been noticed by a large number of students of the morphology of the blood, beginning with Didé and Bruce, that improvements in the condition of dementia praecox cases, as well as other cases of insanity, are preceded by a hyperleucocytosis. Halvar Lundvall, of Sweden, studied with the greatest care the morphologic elements of the blood in cases of dementia praecox, and established the fact that there was a blood crisis attending or immediately preceding every case of improvement, in which the concentration of the blood was diminished, the red blood corpuscles fell from far above normal to somewhere near normal, and the white corpuscles rose from about the normal to a point considerably above the normal.

Lundvall conceived the idea, which seems perfectly rational under the circumstances, of producing artificially a hyperleucocytosis, with the purpose of bringing about an improvement, the same as if it had resulted spontaneously or from the effect of a suppurative disease. For many years the effort to imitate the acute infectious diseases in this matter has been tried out, but without much success. Hyperthermia was used, the injection of irritating substances like turpentine, and the application of caustics, escharotics and blisters. From these methods even some cases of betterment or recovery have been reported, but they have generally been looked upon as in the first instance errors of diagnosis and, on the other hand, spontaneous recoveries of a temporary nature so incidental to this disease. Taking up the use of subcutaneous injections of the nucleates and of hetol, which had been tried out especially in general paresis, Lundvall contrived a remedy consisting of the nucleate of soda, hetol, arsenious acid and quassine. With this remedy in January, 1913, he reported the treatment of eighteen patients, six of whom recovered and all but three made commendable improvement.

Donath, Heubner, Ittan and others have made similar experiments with the nucleates and have found that they were uniformly productive of a

hyperleucocytosis and that some patients made temporary and some permanent improvement.

We must admit that as long as we are ignorant of the cause, the etiology and anything but the barest hint at the pathology of dementia praecox, it is hopeless to secure any general and reliable treatment, but the fact that practically all organic repair in the human body is attended by a leucocytosis and even a hyperleucocytosis, that it is not irrational until research has demonstrated a better way to employ such means as we have in increasing the reparative morphologic elements of the blood. We know that the leucocytes are increased by exposure to the light, the air and to rapid changes of temperature and we have observed with the greatest satisfaction the remarkable cures from the exposure of tuberculous patients to these conditions, especially the cases of bone tuberculosis in Rollier's sanitarium. It does not seem unreasonable then to credit the reports which have been given of betterment in cases of dementia praecox to the subcutaneous injection of the nucleates, the exposure of the patients to light and air and the careful coaxing of all of the eliminative organs of the body.

Commencing less than a year ago, I have advocated the use of the nucleates of soda, as recommended by Lundvall,* the exposure of the patient to light and air and the improvement in all excretory organs, as a treatment of this disease. My disappointment has been very great that so few physicians having these cases in hand have been willing to undertake this novel method and that when it has been undertaken it has been done fitfully and without any continuous purposeful study and application. My astonishment has been great that the difficulty of securing blood examinations has been almost prohibitory to the use of the remedy. My directions have been that after the blood count is made a dose of the Lundvall remedy of one to twenty cubic centimeters be injected sub-

cutaneously, the size of the dose depending upon the reaction. The dose should be large enough to raise the leucocytes to twenty or thirty thousand, and it should be repeated often enough to keep the leucocytes above the fifteen thousand mark. In many towns in the United States of a population of one to five thousand it has been impossible to secure a regular blood count, and thus parents who have been eager to use the remedy upon patients kept at home, under favorable surroundings, have been unable to do so. Up to the present time I have no reports to make, except to say that in every case where the remedy has been used it has produced a hyperleucocytosis, and the patient has gained in weight. No trial of this remedy can be considered of any significance unless it is used for a period equally, at least one-third, the duration of the disease previous to the beginning of the treatment.

PRECAUTIONS AND LIMITATIONS OF THE ABDERHALDEN METHOD IN THE EXAMINATION OF MENTAL CASES.

ADOLPH GEHRMANN, M. D.,
CHICAGO.

There has been great interest in the findings of Abderhalden, in which it was shown that ferments were developed in the blood of individuals. These are capable of acting either as specific principles or immune bodies having digestive dissolving action upon different kinds of albumins or tissue structure. The examination of the blood of individuals has been very enthusiastically carried out without giving sufficient detail to the procedures that are necessarily involved. In every reaction that is as complicated as that of Abderhalden, each worker must develop a certain technic which is the result of adaptation to his views and resources. Here, as in other diagnostic tests of a similar character the limits of the reaction must be recognized and it is necessary that they be carefully interpreted.

For practical purposes it is my intention to discuss the technic and not to go into a consideration of the results of applying serum to different organ tissues. Some of the points that may be considered are the conditions in the patient, the conditions in the serum, the tissues

*The remedy can be prepared by any careful pharmacist, but it is a technical procedure. Mr. L. Breckwoldt of Sargent's Drug Store has made the remedy from Lundvall's manuscript directions, viz.:

R	
Quassin, depur. sicc., "Merck's,"	2.0-
Aqua. distill.,	50.0-
Boil on water bath for one-half hour, filter, and add:	
Natr. Nuclein,	10.0-
Hetol. (Sod. Cinnamate),	1.0-
Acid Arsen	0.005.
Boil, filter and obtain	50. c.c.
Give 1-2 c.c. to 15-20 c.c. and repeat when the leucocytes fall below 12,000.	

Leonard Breckwoldt, R. Ph.

used, the details of the test, the conduct of the test, and the reading of the results.

Conditions in the Patient.—If the presence of the ferments in the blood is an evidence of immunity and has depended upon the presence of foreign cell particles that have gotten into the circulation more or less accidentally, it will be subject to the variations of similar methods of protection. De Waele finds that the injection of peptones or amino-acids within a few minutes leads to the presence of ferments that will act on the albumins from which these bodies were derived. Feeding experiments give rise to the same results and these two observations make it clear that extraneous reactions must be guarded against by placing the patient under strict control for some time before taking a blood specimen. The patient must be starved until extraneous proteid factors are certainly removed and the serum not likely to contain any except the specific ferment itself. The danger from autolysis of any kind having occurred in the patient just before the blood specimen is taken, is one of the chief points to be guarded against. Further, as regards the patient, the question as to the quantitative bearing of the reaction is far from being settled. Are there any normal reactions that we can expect, or are there in individuals conditions other than those for which we are looking that give rise to digestive ferments in the blood? If this is the case, there may be a certain degree of reaction that may be considered as normal and should be taken into account in a final reading. At what point shall the positive reactions begin as relates to the patient? And shall the reactions that occur late with the patient's blood, say after standing forty-eight or sixty hours, be considered as a specific reaction?

It would seem to me that the quantitative condition will have to be fulfilled in this test to cover certain degrees of normal reaction and of reaction occurring from causes other than those for which the test is actually being made and observers will have to recognize in the patient these possibilities in drawing a final conclusion as to positive or negative reactions with any given tissue substratum.

Conditions in the Serum.—The blood specimen should be drawn where the test is made and at once centrifuged and put on ice. All aseptic precautions must be used. Singer, Heilners,

Petris and others have found that the resorption or injection of an animal's own serum gives rise to the presence of different defensive ferments having the property of digesting the albumins from the different organs. The absolute specific nature of these ferments is on this account brought into doubt. On the other hand, Hirsch reports animal experiments in which the production of specific ferments for placenta and uterus were developed by intravenous injections of emulsions of these tissues. Whether the ferments are derived from the intestinal secreting glands or are formed in the circulation is in dispute. At any rate, as the digestion of tissues seems to be a group reaction, the serum must be free from extraneous possibilities if it is at all possible to make it so. Therefore, all cells should be removed as quickly as possible, and there should be no chance for autolysis of any of the constituent cells to occur. This can alone be accomplished by details in the obtaining of the serum and its preservation before setting up the test. Not enough attention has been given to the complement condition of the serum. In general the hurry to make a test does not allow of time to fully consider such details and it is possible that with some tissues the test made with complement-bearing or with inactivated serum will give different results. Of all the control steps in the technic, the experiment with serum alone is the most vital. There must be no doubt of this control and it is therefore essential that the blood specimen be again properly drawn and handled as a preliminary requisite.

The Tissues Used.—Much study has been put upon the tissue substratum, which must be free from decomposition and free from blood. It is only the proteid part that is of use in the test. The use of normal tissue and of pathologic tissue has been apparently quite indiscriminate by most workers. To me it is a question of whether we should accept experiments with pathologic tissue when we are looking for a condition which will act upon normal tissue itself or the reverse. The preparation of the tissue requires painstaking care. Here Abderhalden's instructions must be followed. Long and frequent washing and frequent boiling are necessary to free the pieces from extraneous errors. When properly prepared, they can be kept on hand for use.

Ollier and Stephan, from an experience of

about 3,000 tests, believe that in each case a number of different substrate tissues should be used. They are further of the opinion that the clearly positive and clearly negative tests should be considered and that doubtful reactions do not count. This is one of the most difficult points in the experiment, and every worker must admit that there are constantly appearing doubtful or intermediate reactions.

Details of the Test.—The dialyzation principle in the Abderhalden test has withstood attacks from many angles. Whatever there is in failure that may be attributed to technic, should be divided equally between one method and the others. The success in the experiment rests in the exact control of the details of the test. Every step must be carefully guarded against error. Of all the details of the original Abderhalden, the testing of the dialyzers has given the most trouble. One cannot be certain of their integrity, and the experiments should therefore be made in duplicate or triplicate in order to be certain without repeating the experiment. There is much variation in the permeability of the dialyzer tubes. Permeability changes with sterilization and the sacs are injured. Swart and Terwen recommend testing by a solution of casein in the dialyzers, testing water outside by underlying with sulphuric acid. The dialyzers must certainly prevent the passage of albumins and must as easily allow the passage of peptones and albumin derivatives. The cleaning and sterilization of dialyzers is uncertain. Shall they be sterilized at all, or shall we depend upon asepsis or anti-sepsis alone? It is recommended by Simon and others not to sterilize the dialyzer sacs at all.

Setting up to the Test.—In the test there is an open question as to the amount of serum to use and how it shall be diluted; also how much water shall be placed outside of the capsules. Further, as to how much tissue shall be used. I believe most workers are using from .5 to 1 c.c. of serum rather than larger amounts, and making more tests or duplicates and controls than was at first the practice and was thought necessary by Abderhalden himself. The essential part of the tissue substratum alone is necessary, and this must be perfectly coagulated. Sometimes, as in brain tissue, it is hard to get it to hold together. A number of methods have been proposed to overcome the difficulties of dialyzation. The optical

methods shows amino-acids by polarization. It is used as a control for the dialyzers. The practical testing of digestive products by the biurate reaction is generally considered not satisfactory, but may be used in a limited way also as a control. Plaut has tried inert material and barium sulphate, talcum, or filter stone with the serum alone, and found the presence of ninhydrin reacting material in the dialysate. In this experiment it is thought the ferments digest albumin in the serum itself, and this should not be forgotten as a precaution and be recognized in those tests and serum, and then precipitates albumin and peptones with ferric hydrate and tests the supernatant liquid for amino-acids by the ninhydrin method. Dr. Fischer in our laboratory has tried the method of coloring the tissues with stains until they are thoroughly stained and fixed and will not give off color after repeated boiling. Such tissues upon being digested with serum that is active dissolve in part and release the color. The reaction made in this way so far has not been absolutely reliable.

Conducting the Test.—The temperature at which the digestion is to be conducted has been studied by every experimenter. Neither temperature nor time has been standardized, and this will be found more or less at variation in the literature and probably gives rise to variations in the results. Some uniformity should be recognized in these conditions for a standard working procedure.

As regards the prevention of bacterial growth, great care must be used, and the use of chemicals or preservatives is worthy of special consideration. Toluol is very generally used. De Waele recommends chloroton with thymol, and says that thymol has never interfered with tests in his hands. However, strict asepsis is the best way to avoid contamination, or at least to reduce it to a minimum.

Should the specimen be shaken during the period of digestion, is another point. The digestive products and ferments are very small in amount and moderate agitation should facilitate their separation and passage through the dialyzer.

Interpreting the Reaction.—Finally, we must give the ninhydrin reaction some consideration. It is a remarkable reagent in its color reaction with amino-acids and aminolike bodies. Its color reaction is distinct and varies in intensity

with the amount and time of application. Ninhydrin also reacts with glueo-samin bodies. Dietjen and Fraenkel believe that such may at times be formed from connective tissue. We have seen the reaction frequently enough with glucose, but do not think that this observation is sufficient to reflect in a detrimental way upon the reading for amino-acids. The application of ninhydrin is a simple part of the experiment, but the question is as to whether a distinct coloration should be demanded, or whether we should look upon the slight and variable shades of coloration that sometimes appear as being worthy of consideration in drawing conclusions is not so very easily decided. It would seem that unless a sufficient amount of amino-body is present to give a distinct and clear coloration with ninhydrin, the results should be considered as negative.

DISCUSSION.

Dr. Gehrmann: I have asked Dr. Fisher to make a demonstration of the principal points.

DEMONSTRATION OF THE TEST.

CHAS. E. M. FISCHER, M. D.,

CHICAGO.

The technic of the Abderhalden serum diagnosis depends on the following theory:

"A foreign protein within the body causes the production of a ferment capable of digesting it." Repeated injections of sheep's blood corpuscles into a rabbit is followed by production of a ferment in rabbit's serum capable of digesting sheep's blood corpuscles; the invasion of the body by placental tissue, produces a placenta digesting ferment in the serum. Alteration in the function of tissues is accompanied by alteration in chemical structure. They are then foreign proteins and specific ferments for their digestion are found in the serum. This digestion can take place in vitro as well as in vivo.

Active serum digests protein to peptones and these are further broken down to amino acids. The tissue on which the ferment acts is called the substrate. The ferments, as usual, are specific for each substrate.

To make an Abderhalden test, the particular substrate under investigation, having been washed free from blood and dialyzable substances and

coagulated by boiling, is placed in a parchment paper thimble. 10 c.c. blood is drawn from a fasting patient, allowed to clot, centrifuged, and the supernatant, clear, haemoglobin-free serum withdrawn. 2 c.c. serum is added to substrate in the thimble. The thimble is then set into a urinometer jar containing 5 c.c. sterile, distilled water. Toluol is added to the contents of the thimble and the water outside of the thimble. The toluol floats on top and prevents bacterial activity and evaporation.

The urinometer tube is then stoppered and set in incubator for 12 to 18 hours.

The contents of the thimble (serum and substrate) cannot pass through its walls into the surrounding water. If the serum contains specific ferments, digestion of the substrate occurs with the production of dialyzable substances. These pass through the thimble and their presence in the surrounding water is demonstrated by boiling 2 c.c. with 2 drops of a 1 per cent ninhydrin solution. A blue color results. Ninhydrin reacts with all proteins, peptones, polypeptides and amino acids. It is not equally sensitive to all, but is always a very delicate test. Some amino acids can by this means be demonstrated in a dilution of 1 to 95,000.

In applying the test to the diagnosis of pregnancy, placenta tissue is used as the substrate. If digestion occurs, the patient is pregnant.

In dementia praecox, sex glands are used as the substrate, the serum from a male praecox digesting testicle tissue, female praecox serum digesting ovary. Normal serum shows no digestive action.

As the disease progresses, the serum acquires additional digestive ferments, acting on the cerebral cortex and other tissues.

Extreme care must be used in making the test. Many inaccurate results have already been reported because the would-be investigator was not thoroughly trained in physiological chemistry.

DISCUSSION.

Chairman. This was so instructive I will call it a discussion. I think the test which we have had was admirably demonstrated. Now, if there is any further discussion upon the diagnosis and test, the whole subject of dementia praecox is now open. I will call upon Dr. Hickson.

Dr. W. J. Hickson: I came here to listen and be instructed and not to do any talking. I have nothing to add. I am doing the Abderhalden work

and I think it was very nicely demonstrated and it showed the necessity for an exact technique. I did not have such good instruction when I started out. The only thing that I would add is, in my study of the defective group, I was using spinal fluid. I had not heard of that being used yet. I was trying it out and I was sorry to leave that work when I was called to Chicago. We are continuing with the Abderhalden test in the Psychopathic Laboratory in connection with the municipal court and we have made preparation to go on with the work and hope eventually to make a report on the Abderhalden test on the spinal fluid cells, blood serum with the different organs. I found it to be always reliable, but I don't quite agree with Dr. Fisher that we will depend on that entirely. I think we will use it along with the Wassermann reaction and clinical observation, at least for some time until the Abderhalden test is more thoroughly thrashed out.

Dr. Singer: We have been doing quite an amount of the Abderhalden work at the Psychopathic Institute and I feel very strongly that there is need for a very great amount of work in the testing and interpreting of results. I feel from a study of literature that there has not been very much fundamental work done yet. There is very little work that has been done with the normal tissues, normal serum. I have been very much struck with the fact of using dogs for the purpose wherein one is able to control the health of the animal under investigation and that a healthy dog's serum will digest its own organs.

Dr. Lindsay (closing): I must say I have been instructed by these papers on the subject of dementia præcox and by these tests.

Dr. Sterne (closing): There is a great deal to be learned before a positive basis can be established for the application of the Abderhalden test. To my mind it opens a tremendous field of possibilities, and I am personally most favorably inclined to its interpretation, but I want to reiterate that, as things stand now, we must have laboratorians upon which we can rely. Now, there are very few laboratories, even in institutions, which are properly conducted. It is going to require a considerable length of time to establish laboratories which will conduct these tests.

Dr. Holmes (closing): I want to say just a word because I do not like to have the notion prevail that the Abderhalden test is a simple thing, nor that it is too difficult. I still think any young man who has the necessary physiological chemistry at his command can take the fourth edition of the Abderhalden book, which has just appeared, if he be conscientious and willing to work, can carry it out to a success.

Dr. Gehrmann (closing): Mr. Chairman, I have had some experience with laboratory work. Every time when a new procedure presents itself we have the discussion that goes along with it, which lasts maybe for a year or two years, then it becomes general knowledge, either as good or bad. We stand before a new proposition now. We have something;

we have to try it out. A few points have been omitted which you can read about when it is published.

Wednesday, July 15, 1914, 9 A. M., Psychopathic Hospital, Chicago.

Chairman: Meeting called to order. I wish to thank you for coming this long distance from the center of the city, our regular meeting place. I am going to ask Dr. King to preside at this meeting. I wish to introduce to you Dr. King.

Dr. King: I appreciate this courtesy very much indeed to be able to preside at this meeting. While several of the doctors are absent, I feel that our visit to this great institution will be more than compensated, for after hearing the papers we have and going over the institution and getting new views, etc., I shall call the program for this morning and will ask Dr. Davis to welcome you to the Psychopathic Hospital.

Dr. H. I. Davis, Chicago: Ladies and gentlemen, in the name of the commissioners of the board of Cook county I wish to welcome you here this morning.

THE NEW COOK COUNTY PSYCHOPATHIC HOSPITAL.

H. I. DAVIS, M. D.,
Superintendent.
CHICAGO.

Ladies and Gentlemen:—It is carrying coals to Newcastle to bring forth argument before an assembly of this kind as to the necessity of organizing psychopathic hospitals. The evolution of the science of psychiatry was mainly instrumental in continually bringing forth new ideas as to what should constitute a modern psychopathic hospital.

Generally speaking, the functions of a psychopathic hospital are twofold:

1. Actual hospital care of patients who have been unfortunate enough to break down mentally. A modern hospital should be equipped to the extent of giving this class of patients the very best of scientific care and nursing, so as to facilitate the most rapid recovery, where recovery is possible.

2. The more important function of ascertaining by way of proper laboratory, psychological, and pathological work the underlying causes of mental abnormalities and, having ascertained such causes, to prevent, by proper instruction of medical men and the public, the increase and possibly the very development of this class of diseases.

This institution has properly been placed in close proximity to the large general hospital, the Cook County Hospital, for the following reasons:

1. Many of the admissions to the Cook County Hospital show mental abnormalities when admitted to the hospital, or develop such abnormalities after admission. Their transfer to the psychopathic hospital is thus facilitated. One hundred and eighty such transfers were made from December 1, 1912, to December 1, 1913.

2. It relieves us of the necessity of establishing separate surgical and obstetrical wards, as we can easily have patients in need of such treatment temporarily transferred to the general hospital.

3. The introduction of the psychiatrist into the general hospital is filled with the greatest possibilities for medicine. The large class of so-called "nervous" patients who find their way into the general hospital can be more intelligently and sympathetically treated when transferred to the psychopathic department.

4. There are continually found in every general hospital, outside of the different fever deliria, post-operative psychoses, psychoses from shock, or loss of blood, neuroses of the gastro-intestinal tract and cases of mental abnormalities accompanying pelvic diseases in women—all cases that can be more properly taken care of in the new psychopathic hospital.

At the present time, there are in existence in this country: the Phipps Psychopathic Hospital, in Baltimore; the Boston Psychopathic Hospital; the State Psychopathic Hospital at Ann Arbor, Mich., and the psychopathic ward at the Bellevue Hospital.

This new psychopathic hospital has a frontage of 160 feet on Wood street, and 156 feet on Polk street. The building is five stories in height on Wood street, and four stories in height on the side wings. It has a bed capacity of 230. The building is of reinforced concrete, tile and fire-proof construction with drawn steel door and window trim, and steel furniture. The floors of corridors, bath rooms, kitchens and other service rooms are of artificial marble tile. The floors of all wards and offices are of imported battle-ship linoleum solidly cemented to the concrete floors. The building is equipped with two passenger elevators, one of them of the push button type. Many of the rooms are ventilated by exhaust ventilating fans, but the majority of the rooms and

wards have such excellent natural ventilation, that an artificial system is unnecessary.

The building, completely equipped and furnished will cost approximately \$470,000, or \$2,100 per bed, which is a very low price for a fire-proof building throughout, containing such complete equipment for the treatment of this class of patients and so many single rooms.

The first floor contains the administration offices, rooms for social service workers and investigators, out-patient department, court room, male and female receiving wards, and head nurses' room.

Each of the south and north wings of the remaining three floors represents a unit, consisting of rooms with single beds, two beds, and three beds, and a small ward (capacity, 12 beds), nurses' service room, dining room, examining room, room for visitors, and six single rooms for disturbed patients located at the end of the wing and separated from the rest of the unit by a corridor. The wings of the fourth floor differ in that the general wards are larger, having a capacity of eighteen beds each.

The fifth floor is given to hydrotherapeutic apparatus, consisting of batteries of continuous tubs, showers, sprays, sitz baths, tables for massage and packs, electric cabinets, and rest rooms. These rest rooms are equipped with small ice boxes for holding cooled water, milk, or other beverages that may be offered to the patients. These rest rooms are for the use of the patients who are receiving hydrotherapeutic treatment. On the fifth floor is also our laboratory with its modern equipment, and surgical dressing rooms. The placing of the main part of our hydrotherapeutic apparatus on the fifth floor I consider of great advantage; sunlight and air are thus available.

Each wing is also provided with continuous baths in close proximity to the single rooms set aside for disturbed patients thereby facilitating the treatment of such patients with the continuous baths. Each wing is also provided with a very large day room. These day rooms connect with enclosed porches extending the whole width of the main building.

The out-patient department has a separate entrance on Polk street. It is our desire that the doors of this department shall be wide open so that everyone who feels in need of our services will have the right to enter and be treated.

Of the 2,500 admissions to the hospital during the last year, many were paroled from the various state institutions. Over-crowded conditions at the state hospitals very often compel their superintendents to parole or discharge patients before they are really capable of taking care of themselves. The result is that after spending only a short time at home, they are promptly returned to us. This proposed out-patient department should take care of this class of patients, and assist them in every way possible, by having actual supervision over them.

Facilities have been provided for teaching purposes, and the room you are now seated in, with its special entrance, lends itself very readily for clinical purposes. Bed-side observation of patients for small groups of students is also intended.

The social service department has been a feature of the old Cook County Detention Hospital, and it is intended to extend the work of this department. We now have the services of five trained nurses of the Illinois Society of Mental Hygiene, which is a branch of the National Association of Mental Hygiene, whose object it is to advocate measures for the proper study of the causative factors of mental alienation, the proper treatment of insane, and their further care when they are released from the various state institutions. This society has done a great deal of good in awakening the public conscience to the enormity and gravity of this problem in our social life. These five nurses investigate all cases admitted to the hospital.

A word as to our laws regarding the commitment of so-called insane. While the need of a special institution such as we have now established is obvious, it is feared that it will not exercise its greatest usefulness unless conditions regulating the admission of patients to the hospital are changed. It should be possible for patients suffering from so-called psychopathic disorders, and conditions usually classed as border-line cases to enter the hospital without any legal procedure. According to our laws, an order from the county judge committing the patient to this institution must be procured before the patient can be admitted. The law also provides that the cases must be disposed of within ten days after admission. An attempt has been made during the last session of the legislature to extend the limit to

forty days, but so far, we have not been successful. The entire question of legal technicalities surrounding the admission of patients to our hospital is far from satisfactory, and all of our institutions will be handicapped from doing the greatest good to the people of our state until it becomes possible for patients to avail themselves of treatment with no more embarrassment than now attends the admission of patients to any hospital.

Until a short while ago, the greatest majority of our patients were brought to our institution virtually as prisoners in the hands of the police. As far as our women patients are concerned, this has been discontinued entirely, and when properly notified, the hospital sends out an automobile in care of a nurse, to bring the patient to the hospital. Since this measure became operative, we do not receive as many excited and disturbed women patients and handcuffs and straps are not seen as often as in the past. This has had a most beneficial effect on the patients. About forty women patients are brought to the hospital in our automobile every month. Quite a few of the women patients are brought in by their relatives so that it is a rare sight now to see a woman brought to the hospital in a patrol wagon.

The medical members of the institution are at the present time its superintendent and a resident physician. As to the staff of nurses, we have seven graduates; there are twenty male and female attendants, and two bath attendants, male and female. Steps have been taken to secure the services of an expert pathologist and psychologist, but owing to the limited funds allotted to us by the present Board of County Commissioners for this fiscal year, the chances are that this matter will be kept in abeyance until the new budget for next year is made up.

We are at the present time occupying only about eighty or ninety beds, but we hope to gradually extend the service.

It is our earnest prayer that the authorities to be will see their way clear to provide sufficient funds to maintain this hospital at its highest possible efficiency for the benefit of our patients and the community at large.

The institution as it is now conducted, and has been for years past is a free institution. There seems to be no valid reason why relatives of patients who are financially able to, should not pay

for their maintenance while they are in this institution, but according to our present laws, the county has no right to conduct anything but a free institution.

[Men who are occupied in the restoration of health to other men by the joint exertion of skill and humanity, are above all the great of the earth. They even partake of divinity. Since to preserve and renew is almost as great as to create.—*Voltaire*.]

DISCUSSION.

Dr. King: I would like to ask one question. The question I wish to ask is this: In a city like Chicago, where you have the fast transportation with our automobile ambulance, is the ideal location of a psychopathic hospital in the heart of a throbbing city or should it be placed in the suburb?

Dr. Davis: As far as Chicago is concerned, I personally feel that the selection and placing of the hospital in the position it is now is the proper one.

Dr. Singer: I may say that this question of psychosis accompanying pellagra is one that has interested me quite a good deal. I was impressed with one remark the doctor made, that those insane with pellagra do not recover; they remain insane. That is contrary to my experience. I have been looking at cases not only in this state, but in the insane asylum in South Carolina and also in Georgia for a type of chronic dementia. So far I have not been able to find it. The qualification of the statement was to the effect that he considers the mental symptom as rather independent of pellagra itself. There is, however, a certain type of mental disorder which is extremely frequent in pellagra and which should be attributed to the pellagra itself and not called an accompanying condition.

A CLINICAL OBSERVATION ON THE PSYCHOSIS ACCOMPANYING PELLAGRA.

A. A. THURLOW, M. D.,
NORMAN, OKLA.

Dr. Thurlow: Owing to a slight misunderstanding I was unable to complete my paper upon the psychosis of pellagra. I will therefore ask your pardon for giving you some random observations.

Now coming from Oklahoma I have had an unusual opportunity to observe; we have an average of perhaps 25 cases a year in our institutions. Pellagra, as you know, occurs in the insane as well as the sane. I wish to state however, that I have seen but very few cases of pellagra in those individuals who are entirely sane and free from neurosis of all kinds. The

superintendent of our sanitarium was the first man to report pellagra about 8 years ago from Oklahoma. He had known there were cases of sunburn cropping out from time to time and when he first reported from South Carolina the recognition of the disease he came to it that it was pellagra, which we have also in Oklahoma.

We receive our pellagra principally beginning about the first of May in Oklahoma and the cases come on with increasing frequency until early Fall. The maximum number of cases come on then in the late Spring and also in early October but not in such great numbers at other times of the year. Now in addition to receiving patients who have psychosis and pellagra at the time admitted, pellagra crops out in insane patients and there is no type of insanity in which we have not seen pellagra occur. Some individuals have been in the institution five to fifteen years before the pellagra comes on.

During the last three years of the cases that have turned up in the institution, no two cases have come in the same ward which has some significance as to the contagiousness of the disease. The disease occurs in idiots, the imbecile and is especially frequent in the melancholiac. However, the characteristic psychosis of pellagra and the one which we most frequently see is characterised by the anxious depression—the patient is confused and remains so until he is mentally improved and his improvement is physical. We have had cases in children as young as twelve years under my observation. Of course it is reported as occurring even in younger children. As a rule, we see the depressive face. Just before I left Oklahoma, we discharged a patient entirely well, both mentally and physically, who had depressive melancholia and all of the physical and mental signs. Within two months while the depression was still there she developed signs of pellagra on the thumb of both hands; at the same time the skin of the face began to dry and peel a little bit; the sleek tongue, as we call it, is a sign of pellagra. That is one of the best cases so far as the maniac psychosis that I am able to report. We think nowadays that we can tell pellagra by the facial appearance of the patient admitted to the hospital, we have seen so much of it; the patient coming in with the dried-up face, dried up skin and dried-up expression of the face, a peculiar melancholia expression.

Now I want to mention also the fact that we frequently have a history in our cases in pellagra who come to us with pellagra. These pellagra patients refer to ancestors as having neuritis, not recognized as pellagra, but which from their description we know to have been pellagra. We therefore think there is something to be considered in the heredity of pellagra patients. We frequently have a history of our pellagra patients telling us of an aunt in a distant town having had the disease. We are always searching yet we have not come to any conclusion which we can consider of great importance. Farmers come to us with pellagra and say that their cattle are diseased and that individuals who have pellagra caught it from certain cows. We thought we had made a discovery for a while and we began to ask patients if their cows had any disease, but after a few months of search and investigation we were compelled to abandon that. A case in point: A man had a cow who had a skin lesion but we were unable to make further connection with the disease. Now as to the prognosis in pellagra; it is both mental and physical. I have not seen any case discharged in the last four years, either physical or mental, who has returned, but I am still a young man in the work and I may see some of them back. The cases usually end in death; most of our cases turning up in the institution die during the first attack of pellagra. The older the person the less liable to recovery. A permanent insanity is the rule in those who recover from the physical results of the disease. As to the treatment, we are using but very little in the way of medicine. We treat our cases as depressive cases, melancholia cases, etc. In conclusion I might say that we have considered pellagra to be not so much a cause of insanity as that it is prone to occur in the insane; that is to say, we get a great many cases admitted to the hospital in whom there is both a neurosis latent and the pellagra present. We have very few cases occurring in persons who are entirely free from neurosis.

WHAT ARE THE INDICATIONS FOR RESTRAINT?

H. J. GAHAGAN, M. D.

Superintendent Elgin State Hospital

ELGIN, ILL.

My subject is one which can be introduced with the usual graphic description of the efforts

of Pinel and of other illustrious pioneers in the work of converting madhouses into hospitals; but as that story has been so often told I take for granted that you have already heard of their experiences and will endeavor to recite to you some personal observations of twenty years ago and of today. I will not confine myself to the questions of "Indications for Restraint," but will treat the subject from its various angles.

In June, 1893, I was appointed a member of the Medical Staff of the Elgin State Hospital, and in my first rounds of the wards was astonished to witness the apparently very quiet and undisturbed patients restrained by a variety of means, each more repulsive than the other. Restraint apparatus was supplied for the wards to be used by the attendants when in their judgment the occasion required, katatonics in fixed rigid postures, mute but appealing, strapped to heavy wooden benches or laden with strong leather muffs. The covered crib and straps claimed the victim of acute mental disease, while in the side rooms, under lock and key, were placed the poor unfortunates whose only offenses were that of being troublesome.

Dr. Arthur Loewy, now of Oak Park, had just been appointed Superintendent and to him I protested. He stated that he was opposed to those inhuman methods and proposed to have them stopped and advised me to remove every vestige of restraint possible. Twenty-five were released from the torture of their bodily movements and all doors to side rooms unlocked. Much to the surprise of the attendants no riot ensued nor was there an unruly mob. I was appealed to by the attendants to be careful lest I be harmed but I was not threatened; in fact, during my four years in the service I was not struck by a patient.

Dr. Loewy was so much pleased by the results that in a very short time there was inaugurated a complete revolution for the greater freedom of the insane. All doors to dormitories and side rooms were left open at night. This in addition to the continued removal of restraint and more frequent parole of the grounds was largely responsible for the marvelous recovery rate of fifty-two per cent of those discharged during the biennial period of 1894 to 1896. The custom up to this period of locking patients in dormitories with an open toilet, used by twenty patients, produced most revolting sanitary conditions, and

I assure you the odors emanating were vile. These toilets were removed, allowing the inmates to use the general toilet of the wards.

Much good has been done in the State institutions to promote the endeavors of those who were in the primitive work of twenty years ago. Through the kindly efforts of such humanitarians as Dr. George A. Zeller, at present alienist of the Board of Administration, and for many years superintendent of Peoria State Hospital, restraint in the hospitals for the insane in Illinois has been abolished to a great extent. Dr. Zeller decries anything that savors of restraint; his illustrations of the folly of such procedure and his epigrams in denunciations of the system are well known.

I have endeavored as superintendent of the Elgin State Hospital, since my appointment March 1, of the present year, to promote greater liberty of the patient. At present there are 325 out of a total of 1780 inmates enjoying parole to the grounds. With the females I have generally adopted the group method, each giving their word of honor to obey the rules and not to separate from the group. This works out very satisfactorily and gives no trouble.

Impress upon the insane individual that he can have the liberty that he enjoys at his home, encourage that state of mind of promptly complying with his desire for individual parole and it relieves him of that fear and apprehension that he is doomed to imprisonment. The most surprising feature of the granting of parole is the less frequent escape. It is the same old story which applies in every day life to restrain a person from that which he most desires increases within him greater tendency to gain it. From March 1, to July 1, eighteen escapes from the Elgin State Hospital occurred, not one under parole conditions; in fact a great many of those who were returned I have placed on parole instead of resorting to the old method of more close observation and confinement.

The paranoiac is a type that causes much trouble with his grumbling and fault finding but, assured increased liberty and parole, seldom will he break his word and attempt to escape.

My experience of twenty years ago and of the present in the care of the insane is that the closer you get to the patient, the more you take him into your confidence, the greater success you

will have in the ultimate result of removing his doubts.

There has been an onward march in many ways to procure greater liberty for the insane; there is still room for the more liberal application of sympathy and gentleness. These methods can be carried out successfully if the attendant can be sufficiently impressed with the importance of his relations to the patient. Unfortunately the salary paid is not sufficient to attract an efficient grade of help so that efforts in this line are handicapped. Without any reflection upon the present character of the help supplied by the Civil Service Board, my personal opinion is that it cannot be compared with efficiency gained twenty years ago, when the superintendent was permitted to be the sole judge of those who care for the patient. The restrictions in this respect have been removed by the present Civil Service Commission, in an order lately promulgated, which permits the superintendent to employ the attendant, subject to the approval of the board. This measure will ultimately assist the superintendent to a great extent in surrounding himself with a class of young men and women who will become more closely identified with their work; and who will take up the training school course.

As to the indications for restraint one should resort to every means at hand before using any form. He should seriously consider the individual and not the reason, and finally should order that the kind of restraint to be used should be removed in a few hours. Too often the restraint used for a longer period than is necessary does not attain its fullest measure as it would if removed more quickly. The problem of what to use with the least irritation and to give greater comfort when under restraint is imperative. Mechanical restraint is used at the Elgin state hospital as a rule only in cases of self mutilation or a surgical measure in fractures, etc. During violent spells we have had splendid results in giving patients employment on the outside, such as running a lawn mower or allowing the freedom of the grounds under close observation. I have in mind several violent maniacs, whose periods of disturbances were treated in this manner and who were eventually discharged as cured.

July 4, during a celebration on the grounds of

the hospital, all of the inmates who were not bed patients were taken out to enjoy the festivities, all were counted into the wards in the evening and there was no act of violence and but two attempts to escape.

The rules and regulations to govern or to abolish restraint are unsatisfactory as each physician will interpret and quibble to avoid statistical publicity. Shall we allow the patients to tear off clothing? Remove surgical appliances? Mutilate themselves, all to the patients' danger? Shall we apply restraint or shall we sidestep the situation by ordering prolonged packs and call it hydrotherapy? Or by using stupefying drugs and call it medical treatment, when there is no physiological indication for either?—only a restraint intention. Shall we be honest and restrain them in a humane way? In an exceptionally violent case where all our means fail, shall we order all our force to sit and hold this patient and let the other hundred suffer when such control only bruises the patient, increases frenzy or tries the temper of the employees? The recovering patient who has gone through the experience will thank you for restraint; the relatives and friends will also thank you. Restraint is indicated in the unusual case which does not fit in the grooves we have made for the treatment of the ordinary case.

Indications for the use of restraint may to a great extent disappear as the questions of salary, hours, intelligence and requirements are adjusted; much depends upon the well trained nurse, trained along practical lines, which includes the intelligent and individual care of the insane. Too often the teacher dwells for hours intending to impart the knowledge of anatomy, surgery, and bacteriology to the brains of young men and women who are unable to grasp this knowledge by reason of an insufficient primary education and thus good time is lost which could be improved by teaching them the practical problems of care, sympathy, and devotion to duty. There is no question but that restraint was abused in our institutions; many other things too were abused.

The tendency always in medicine is toward improvement. This improvement is the result of research both by individuals and organizations. The methods of treatment of years past are looked upon as crude today; so will our pres-

ent methods be looked upon in the future. Keys to heretofore mysteries are slowly being found. Hence in the institution the care of the mentally afflicted is a matter of evolution; undesirable things are put away as they are found undesirable and a better method found to control the situation. Restraint is not a new problem; like all problems it has advanced and slid backwards, but always with gain in the end. The question will eventually solve itself. The lime light of any recent publicity does not alter the situation. The tendency to solve the question at one shake is wrong and needs control for fear the pendulum will swing too far.

750 So. State St.

DISCUSSION.

Dr. C. H. Franz (formerly assistant superintendent of the Elgin State Hospital for the Insane): It gives me great pleasure indeed to respond to the chairman's call for a short talk on this excellent paper of my colleague, Dr. Gahagen, with whom I was intimately associated as assistant superintendent in 1892 at the very same hospital over which he now presides as its superintendent. Knowing him as I do, as an earnest and indefatigable worker in the line of "Restraint Reform," I thoroughly agree with the accuracy of the statements in his paper. When we look back to the olden times and think of the inhuman and unscientific methods of caring for the insane it gives us the shivers. Then we found the much popular use of the rawhide, the heavy reinforced leather muff, the prisonlike wristlets, with their steel bands, steel buckles and locks fastened to them; the heavy waist straps, ankle straps and all other kind of straps, and last, but not least, the unsightly crib-bed that looked much as if you were going to crate up your patient and send it f. o. b., like livestock, to the nearest market. My belief is, and I trust the belief of all psychopathic students, that all this method of restraint was not for the benefit of the patient, but more often for the benefit of the lazy attendants. Can you imagine yourself going through such a ward and seeing a row of patients all harnessed up on the heavy wooden benches against the wall, like a bunch of animals in a menagerie? In the time of my service at the state hospital in 1892 "the all-reform wave," abandoning constant restraint and much of the milder restraint, too, struck all the state institutions with much force, coming from no less a personage than Governor Altgeld, the great humanitarian, a friend of the insane. Having his orders in mind and with an avowed purpose of ever fulfilling my Christian duty toward the unfortunate insane, I sallied forth the very first day of my service through all the wards and rooms to release all, if possible, out of their restraint. I remember one case in particular, a little shriveled-up

woman patient, a chronic dement, who, because of her destructive habit, tearing off and chewing up her clothing, had been left almost in a bare room. I ordered the attendant to fix up this patient as becomes a human being. "Dress the patient and keep her dressed," was my order. The attendant questioned the wisdom of my act. "Don't you know," she said, "that you can't keep any clothing on that patient an hour?" "I said, "Sit beside her constantly for a period of your time of duty; keep her clothed and if it costs the state a cotton dress or duck cloth suit every minute of the day. I want you to impress her as if by instinct, as you would an animal, to tolerate the clothing on her body." Of course, all such reforms require diligence, attentiveness and perseverance on the part of the attendants and as Dr. Gahagan stated, such attendants should receive good compensation for their efficiency in this line of work.

It was not the fault of the chronic dement chewing up her clothing; it was lack of diligence and constant, proper attendance for this individual, whose animal-like mind needed but to be impressed, as by instinct, so to speak, with the necessity of tolerance for wearing her clothing on her body. Hence, to succeed with this kind of "restraint-reform work" requires but good, conscientious Christian-like attendants to be ever diligent, to persevere in their undertaking for the humanitarian work—caring for the insane.

Dr. King: This is the end of our official program. We will have a short demonstration by Dr. Singer in this room and then I presume we will visit the institution.

(Here followed a demonstration with a young man patient from the hospital.)

The members of the society then visited the different wards and rooms of the hospital.

Wednesday, 2 P. M., Hotel La Salle.

THE CONSERVATION OF OUR MENTAL FORCES.

E. A. FOLEY, M. D.
Jacksonville State Hospital
JACKSONVILLE, ILL.

During the past few years lay and professional press have been sounding an alarm that has caused the world to awake and take notice. From their published accounts, one would imagine that the class designated as social delinquents had suddenly increased in numbers. Such, however, is not the case. The number of public charges is gradually increasing, little effort having been put forward to check the reproduction of undesirables. The feeble-minded girl of today be-

comes the grandparent of a feeble-minded brood in the years to come.

It has now been more than twenty-five years since Dugdale made his famous plea that some attempt be made to check the increase of undesirables. His appeal received no response. Over a quarter of a century has passed since DeVries unearthed the long slumbering Mendelian theories. Notwithstanding the work of these two investigators, little attempt has been paid to the importance of hereditary influences. Only within the past few years has any attempt at all been given to the improvement of racial conditions and the transmission of family traits from parent to offspring.

Just at present we appear to be caught in a whirlpool of reform ideas. Like the waters of Niagara, the products of misfits for ages past have come rushing onward. The onslaught assumed such gigantic proportions that the future began to appear doubtful as far as the sound mental development of the nation was concerned. As a reaction to stem the tide of our apparent mental decay, efforts are being put forth to ascertain the whys and wherefores leading to our loss of nervous stability. What can be accomplished to improve conditions in the future? Many valuable theories have been put forth. Others, probably of equal merit, have not as yet demonstrated their worth. Time alone will tell.

One would judge that the onward march of so-called progress during the past few decades was but the calm before the storm. The thoughtless hurry and anxiety to exceed our neighbors without calculating probable results has wrecked many a nervous system. The desire for speed is probably only an exaggeration of the "Wanderlust." Take and analyze one of these cases. To begin with, we have an individual with a nervous makeup below par. It only takes a little taste of useless pleasure to bankrupt the already shaky structure. As a result of this nervous bankrupt condition, we beget an individual who becomes a menace of posterity. The debated question is, What are we going to do with a source of irritation like this? One cannot rush headlong and grasp every advocated remedy for race improvement.

Eugenics has been tossed backward and forward for the last few years like a weaver's shuttle. The word appealed to the populace. There

seemed to be a mysterious meaning within its depths. Magazine writers appear to have lost their reason over the matter. Tainted literature has taken the place of wholesome reading. Instead of improving conditions, as was possibly intended, young minds could only be made worse from such trash. Do not understand that I refer to eugenics as a failure. Eugenical records and the understanding of the transmission of hereditary traits will undoubtedly result in improving racial conditions. What I intend to infer is, that a few fanatics have gone off at a tangent and wandered wide from the original ideas of Galton and his followers. We cannot at this day and age legislate theoretical laws and conditions on any people. As a rule, the results obtained would be more detrimental than good.

Common sense, judiciously applied, brings better results than fanaticism at any time. By our eugenical teaching, we can only hope to have people lead better lives. It is only by this process that our nervous forces can be strengthened. All of the alarm has been sounded on the side leading one to believe that we were a deteriorated nation. Such, however, is not the case.

The last decade has been one vast stride along all lines. In the arts, sciences and education, the so-called great middle class are becoming more enlightened. They are no longer astonished at the foibles of the non-productive rich. Neither are they sinking into the mire like those afflicted with poverty. The world is advancing at great strides. The idea that the duties of physicians are only to make sick people well no longer prevails. Preventive medicine endeavors now to teach people how not to become sick. The jewels added to our knowledge of syphilis are greater than word or pen can describe. The immunization of 80,000 men against typhoid in our army has been a great means of preventing mental unrest.

All these, and many other advances, have done much to conserve our mental energy. A few cases of the unfit have been pushed forward within the limelight and held up as a boggy by only a small number. Some of the theories advanced for racial improvement are still in the debatable stage. Others have hopelessly failed, only to be thought of as exploded fads or a tale that is twice told. One of these fads that has gone by the wayside is the teaching of so-called

sex hygiene in our public schools. If one of these faddists were asked to state what was meant by sex hygiene it is doubtful if he could tell. There has been a great confusion between sex hygiene and sex purity.

The great fall of any movement is due to the over-zealousness of underdone scientists. If not of this class they represent a mental lopsidedness. Instead of doing good, these individuals are on the road to harm and mental destruction of the future nation. No attempt to overcome the existing double standard of morals was made. The biological aspect threatened the very foundation of our mental source—the purity of womanhood.

The overthrowing of this fallacy is just an evidence that our nation is coming to an equal poise in the mental balance. The revelations of the Wassermann tell of the appalling prevalence of specific disease. The lessons learned from this fact have opened the eyes of people who do things. Instruction is at every hand how to overcome the great plague. Prostitution, licensed or clandestine, will be lessened. The hand of womanhood will be felt in every walk of life. Her unfortunate sister will be given a chance to earn an honest living. The chastity of manhood will be demanded and obtained. The vicious classes will have lost their sway. Through these changes, the elevation of womanhood will be brought about by woman herself. By the enfranchising of women, better laws will be enacted, consequently better government will result. As a result, improved conditions of morals will be brought about. The double standard of living will be relegated to the realms of antiquity. The forthcoming race will consequently inherit a more stable mental and physical makeup.

Much has been written regarding supposed improvements following sterilization of defectives. With the writing and passing of laws in several states, nothing else has been accomplished. From time to time gatherings have passed resolutions commending vasectomy. After the flurry and excitement the resolutions would be forgotten until some future time, then brought into the limelight again.

Notwithstanding all of the noise from this source, what has been accomplished? One can cite the 800 cases by Sharp at Jefferson, Indi-

ana, a few know of Carrington's negro, but nothing else. Just recently in the state of Iowa, the prisoners in one of her institutions brought injunction proceedings against the prison physician to prevent the mutilation, and mutilation it is. Who is to say that man's right to reproduce is to be interfered with? Has anyone the right to say who shall or who shall not bring forth his kind? Where are we to begin and who are to be judges? All of these and more will have to be decided before any stand can be taken for such a procedure.

If vasectomy were in vogue, would it improve racial conditions? Will the operation prevent the spread of syphilis and gonorrhea? Will it curb the appetite of the vicious? True it is we see people who, in our opinion, are not suitable to reproduce their kind. But how about ourselves? May it not be that someone will think the same regarding us?

During the past few years much progress has been made in prison reform. The inmates of our institutions are recognized to be in need of humane medical care. The solitary and the whipping post are slowly vanishing. It is wise that their place be taken by the surgeon's knife? In states where vasectomy legislature has been enacted, what is being done? Why the hesitation? Surely there must be some good reason why these enacted laws are not put into operation. The answer I am unable to give you.

While all of the foregoing has been offered for racial improvement, we do not appear to have arrived at anything definite. There is much difference of opinion. As previously stated, conditions are improving. The facilities for educating the masses are getting better. The man in the two-story house has many means at his command to develop himself and his children. Both day and night schools are numerous. Public health officials are constantly issuing healthgrams. The daily press has become the greatest educator we have.

The stand taken by many of our newspapers in protecting the people from dangerous and unscrupulous individuals will aid greatly in conserving the mental makeup of the future citizens. The noble stand against the Demon Rum will assist in shaping the future life of many a boy and girl. All these acting together demonstrate that the masses are improving. There is

a great onward movement for the elimination of the unfit. This movement is quietly working without any blare of trumpets waving of banners. Public sentiment is rapidly changing. People are striving for better government for themselves, better educational facilities for their offspring and better homes for their families. As a result of this great movement, our nervous and mental state cannot help but improve, and improving it is.

STERILIZATION, SEGREGATION, OR CUSTODIAL CARE OF MENTAL DEFECTIVES.

MARY POGUE, M. D.

LAKE GENEVA, WISCONSIN

The wide-spread publicity that is being given to the mental defectives is the outcome of the standardization of the Binet intelligence tests. They enable us to convey to one another certain levels of mental capacity. In this way, the mental age of the patient is obtained. The difference between the mental age and the physical age determines the classification to which he belongs. The application or trying out of these tests to different classes of the body politic has resulted first of all in amazement. We are appalled to find the intelligence of inmates of reformatories, prisons, houses of prostitution, and so on, to be below that of the normal. We believe that twenty per cent of insanity is a further development of a nervous system that finds increasing difficulty in adjusting itself to its environment as it leaves childhood behind and enters adolescence. The intellect of the childhood and young people who make up this class, as measured by the Binet intelligence tests, is below that of the normal.

When we build hospitals, reformatories, schools and colonies for the feeble-minded and epileptic, we are fore-warned of the problem with which we are confronted. We are only now learning that this lowered mental capacity is a defect common to a large class of young people whom society is unable to assimilate. We are so overwhelmed by the number, that our first reaction has been toward legislation. We want the law to give us the right to sterilize all of them, or to segregate them until after such an age that reproduction will not be possible. Such

laws have been passed by different states, and in some of them, they have been promptly set aside as being unconstitutional. The liberty of the individual, as well as the right to reproduce his kind, has always been held as a precious heritage. Any attempt to infringe upon this has met with violent opposition. The common law as set forth in the 14th amendment of the constitution of the United States, protects the individual. It protects him as an individual, and not as a conservative force. The setting aside of some of the laws that have been passed by different states, and the hesitancy which other states feel about enforcing such laws is perhaps the best thing that could happen. It has given us time to pause and to look into the situation a little more closely. Sterilization may be a subject for legislation, or it may not.

The Binet intelligence tests are laboratory tests; they ought to be given under the strictest laboratory conditions. The patient to be examined should be cordially put at his ease and sufficient time allowed him to familiarize himself with the room in which the tests are presented, so that his attention will not be distracted. The one who is giving the tests ought to keep throughout the examination, a strictly impartial attitude; he ought never to give them when either he or the patient is tired or hungry or hurried. It is no little thing to write after a child or young person, feeble-minded. It is tragic to the patient and to his family and such a mistake throws great discredit and ridicule upon the examiner. If you are not sure of the result, it is always better to wait until such time as you and the patient are fresh, and then to go over them again. If the patient or the examiner is under an emotion, the result of the intelligence tests will be nil.

When a wide mental gap separates a child from the family from whence he comes, they can understand him and care for him. Morons and their families are more nearly on a level. Their own mental endowments are so similar that he is not out of relation to the family. They are the most difficult ones to pass judgment on. They elude most tests, they seldom permanently fit into any environment.

The lower grades are so obvious and so helpless that society is in no danger from them. They are almost all sterile. The ones whose in-

telligence comes up to the 12th year level or higher can in a measure care for themselves and stay in society.

There is no more difficult diagnosis in psychiatry than between the so-called morons, constitutional inferiority, the pre-dementia praecox syndrome, or ones in this group whose illness has become stationary.

The laity has always been interested and curious in regard to such illnesses. They are also anxious and eager to see fair play. As far as the writer knows, there has been no outcry against young women, nurses and teachers who have taken at best a six weeks' course in "mental diseases," attempting to make a diagnosis of such serious conditions and advising that the patient be separated from his family and from his home.

We have always had the feeble-minded with us without knowing they were such near neighbors. When society is informed of the great mass of them, the first impulse is that something must be done about it at once. It opens up so many questions; it penetrates into every nook and corner of human life; not one cause, but countless numbers are responsible for it. It is quite a common thing for a committee to draw up resolutions in from fifteen minutes to an hour, that in all probability, will take three generations to work out.

A feeble-minded man and a feeble-minded woman can produce nothing but feeble-minded children. When one parent is profoundly neuropathic and the other feeble-minded, the same pitiful result will stand for their union. Whether or not it is right to let them reproduce their kind is a question so new to us that we have not as yet come to a decision that is either ethical or moral.

We can care for the one who is mindless, or whose mind has gone wrong a little longer, but the change that has taken place is that we now consider ourselves responsible for his offspring.

The bulletin issued by the bureau of the census of the United States, for 1910, gave about 211,000 who were housed in its public institutions for insane and feeble-minded. The possibility of their reproducing their kind is very slight. With most of them their mental conditions are so grave that there is little hope of their mingling in society again.

There must be thousands of people in Chicago today who are on their way to the hospitals for the insane. They are begetting their kind; conception means for the child a neuropathic inheritance. These children yet unborn will know a broken home and they will visit one or the other of their parents in the hospitals for the insane. We do not know enough about it yet to pick them out in time to prevent procreation. That is to select the ones that would transmit their illness.

It would be a great conservative waste to any state or country to take from them all the right of reproduction. Certain insanities are transmissible under certain conditions. They are transmissible as insanity, as feeble-mindedness, as epilepsy. Mental diseases come into families without any previous antecedents that can in any way be held responsible, such as toxemias, infective diseases, and the so-called organic diseases of the brain.

We have no laws in Illinois, Wisconsin, New Jersey, and many other states, by which the insane, feeble-minded or epileptic can be permanently segregated, or segregated until the period of reproduction is past. Relatives and friends may take the patient home and in an extra institutional life they may conceive their kind. After pregnancy is known to have occurred, they are promptly brought back to the institution. This can happen repeatedly.

We must remember that the last word has not been said about environment. It is very possible that selected environment, more nearly fitted to meet the needs of these different classes, are going to be helpful in answering some of these questions. There are ones into which we put young people because they cannot get on by themselves, that undoubtedly tend to make them worse. When we ask that a child or young adult be permanently segregated, we must pause and remember that in the environment in which we are placing him (in the majority of the state hospitals), there are from 40 to 60 per cent of the patients tubercular.

Studies of such families as the Kallikaks and the Jukes are so overwhelming that they almost act as blocks to consciousness. It is some time before they have sufficiently recovery to even feebly present any evidence other than that of heredity.

In the state schools and colonies for the feeble-minded and epileptic, the vast majority of the inmates are one single individual of a family. We would expect the feeble-minded to bring forth their own kind. There are certain strains that under given conditions produce nervous systems whose development is held back.

We reason by analogy and reinforce it by our clinical experience and we find that with a given inheritance on one side (the insanities that are transmittable, feeble-mindedness and epilepsy) and normality on the other, not all the off-springs of that union suffer. The siblings are spared; nature goes back to blocks or units that belong not only to the immediate progenitors, but to a long line of ancestors.

Embryological units that are weak cling together and tend to unite the weakened strain in one organism.

We hear it said on all sides that all the other children in the family are all right. That is what we would expect. We know very little as to what the special circumstances and conditions were that let these weakened embryological units appear. We can only say that it is adverse circumstances, illness, nutrition, elimination, proteid balance, internal glandular insufficiency or hyper-activity.

Two years ago, I reported 100 cases of primary amentia at the meeting of Alienists and Neurologists that was held in Chicago under the auspices of the Chicago Medical Society. The 100 men who are fathers of these children are in every instance alert, successful, business and professional men; there is no question of their not being able to earn a competency for themselves and families. The mothers are equally bright and intelligent. The proof of their fitness to reproduce their kind lies in their other children. No physical or mental tests could have selected them for the parents of feeble-minded offspring. The history so frequently tells of a pregnancy not so well borne as the others, and immediately after birth the difficulty began in finding food that could be assimilated. This history forces itself upon us again and again.

The physical inferiority is the most tangible; we can get hold of it long before we can the mental inferiority. If a child is unable to assimilate food that is good for the young of the

human race the first year or two of his life, there is every reason to be apprehensive for his mental normality. After conception had taken place, there was a blighting of the nervous system. All that we can say now is that we do not know what these conditions were; we have every reason to believe, though, that we are going to find out.

There are organisms that through inheritance, illnesses, and accidents, are so weakened, as not to have the right to reproduce their kind. We cannot group together numbers of people of any class and say we must sterilize all of them. It must be decided in each instance by the history of the individual and the history of his family. It must be decided by more than one person and the ones who give the decision and write their signatures after it, must have a ripened knowledge of the diseases of the mind.

There are so many who can sterilize and so few who can cure. Life is never ours to take, no matter in what piteous distress the patient may be, but it is within our province to prevent conception.

We have known that there is a tendency for insanity to either end or mend in three generations. This "antedating in the inheritance of pathological conditions" is one of nature's methods of elimination. It is thrown forward into each generation just as physical diseases, such as diabetes, gout, and so on. A woman who loses her mind at the climacteric may give birth to a child who will become insane during adolescence or during the first pregnancy. This child in the third generation may be an imbecile and sterile.

Sir George Savage, said in his presidential address to the Psychiatric Section of the Royal Society of Medicine, that if an individual who had a hereditary taint such as insanity, had reached the age of 25 and had shown no previous sign, that he probably would be free and that he would offer no objections to marriage.

The thing that has happened is, a change had taken place in society at large.

Segregation will be probably more acceptable to the staff of the various state hospitals than will sterilization.

They are the ones who must present it to the parents of these children. It is no easy thing to look a man or woman in the face and to tell

them that their child must be segregated until after he is 45.

A mentally deficient child may be the sorrow and responsibility of any man or woman, and this child grow to manhood or womanhood. No intelligent man or woman wants them to reproduce their kind. They are only too eager and willing to be advised. The lasting sorrow of many is that they may have to leave this world and the child behind them. It has taken us a long time to learn that insanity is an illness. The mentally-deficient are sick also, or they have been. They may have recovered from an illness,—the infectious diseases of childhood, and so on, that have left them shipwrecked and without a rudder. Their lowered mental status is in no way different from that of the so-called recovered insane. Their care and treatment is the same, and their relation to society is the same. There may be ones who ought to be sterilized; we may not only believe so today but look back tomorrow and still feel that it was right. There are others who are sick and need our protection (permanent segregation).

The accessibility of the spermatic chord and the ease with which it can be cut is very tempting to a certain type of mind. In all probability this will be their only contribution to psychiatry. Dr. Lewellys F. Barker of Johns Hopkins University said in a paper that was read before the American Medico-Psychological Association that met at Baltimore in May, 1914, that a certain number of physicians are unwilling to have their *pia mater* stretched by such questions.

Too much importance cannot be given to these standard tests. There are flaws in them, and they are disappointing, but they are tangible to present. It was not only yesterday, but it is today, that physicians do not hesitate to pass judgment upon a child's mentality who know nothing about it whatever. They never heard a lecture on such a subject when they were in college, and yet they will take the responsibility of telling a man and woman that their child of 7, 8, or 9 years—who cannot talk nor use his hands—is going to come out all right. They do not identify him with this class of feeble-minded. They look upon him as sick and delicate, but that his head is all right. These tests are something that he can lay his hands on. They are something that can be presented; that can be seen,

and they make a stronger visual impression by their very presentation than so many words do that only leave an auditory image. You can always find a doctor who will say that the child will come out all right.

During infectious diseases and toxic states they see children being made feeble-minded and yet are unable to recognize the blighting that is going on before them.

The intelligence tests only illuminate a part of the nervous system. The uniformity of our public school system makes it comparatively easy to determine what a child ought to know at a given age. The special senses are accessible to standardized measurements also. It is the action or the reaction of the nervous system as a whole that makes it adequate or inadequate, sufficient or insufficient.

Studies for human behavior are more difficult to formulate. They must be gotten at as biological units of the embryo; such as the primitive adjustments of the organism for heat. As the peripheral and sympathetic nervous system is developing, the chemical senses play a part in adaptation. The adjustments in the so-called higher plains of activity must always depend on these lower units. If it were not for the ones that occur at lower levels (reflex and automatic activities) there would be no higher levels. The human intellect was fashioned to meet the needs of human action and to guide it. It is our intelligence that helps us to foresee events and to draw conclusions. It is what the mentally defective does that gets him in conflict with society; his intelligence ought to guide and control him but it is not adequate. The leading hemispheres may do their part, but the sum total of their past experience is brushed aside by an effective element to consciousness.

A little while ago any physician who was courageous enough to write a paper on the mentally deficient was put on the very tail end of the program, and everyone who could get away before her read his paper did so. Grown-up psychiatry has nothing to do with us. They have grown a bit more friendly now that they have found that these feeble-minded children of ours have grown up and that they are reproducing their kind, and tomorrow they will be keenly interested in finding what a fruitful field of research they very nearly passed up. They are will-

ing to grant that some of the insane are sick, and so are some of the mentally deficient.

I do not know whether insanity is increasing or not, or whether there are more mentally deficient children. We are able to pick them out more accurately than we have been before and as we draw nearer together, especially in cities, the standard becomes more exacting.

The widespread interest that is being taken in this subject is the most hopeful sign for the future. There are some feeble-minded, the result of unfortunate inheritance and also the result of environment. The majority are children who are, or who have been sick. The feeble-minded child may come to any man and woman. Some of the women who are bearing the young of the human race, work too hard; they haven't sufficient food, nor the right kind of food. Chronic toxic states such as tuberculosis, syphilis, nephritis, diabetes, cancer, injuries at birth, infectious diseases of childhood, internal secretions, etc.

The mentally deficient have been so overwhelmed by the evidences of heredity that we are losing sight of other quite as potent causes. It is said that the first child born to parents who have come from the agricultural districts of Europe to New York City is defective, and that later children born of the same parents are all right. This surely is not heredity, but environment. The adaptation that the mother is making to tenement life in the city is given as the cause of these defective children. You cannot rob her of all of her progeny on account of this one.

It is a problem that is going to take long and patient research. Society must work out of it not in one way but in several different ways. The answer to some of these questions is going to come from the laboratories.

DISCUSSION.

James Russell Price: I am much interested in the paper and have studied the question a great many years; have kept records of pupils in schools to a large extent and have interviewed fathers until I am thoroughly impressed with the fact that the conditions rests with the father and not with the mother. Heretofore we have thrown the responsibility on mothers throughout the world in regard to feeble-minded children. I have now in my desk at home a record of twenty-six fathers who have kept a diary.

If fathers were only taught that the seed they

establish in their loins will bring forth the quality and kind of their mental condition at the time the seed was established, we would have a different state of affairs. It is necessary for the doctors to teach the boys of this country, this world, the importance of genuine fatherhood and not throw the responsibility on the mothers as they have been doing. In one family, where the record was kept, we have seven different characteristics brought out and the different characteristics that are found in these children conform exactly to the record that was kept—the mental condition of the father—the mother knowing nothing whatever about it.

I have a case right here in the city of Chicago in which a father has three very bright children. He got into a mental condition all upset and nervous through drink and other things and had two or three big doses of morphin; in fact, he was almost insane. His wife tried to keep him from going away one night and that night a child was conceived; that child is now an insane child, feeble-minded, unable to take care of itself. Now, the paper in the main was excellent, but the defects come, 99 cases in 100, through the germs that are established in the father's loins and I hold to that from the records I have in my possession.

Dr. S. A. Koppnagle: I have listened with very much interest to this gentleman and I will give the gentleman my telephone and he can call up my wife and she will tell him exactly the same thing as I am telling you now. When I graduated from college and one of the teachers made similar remarks, I said to myself, if I ever get married I shall experiment in this upon my own family. The teacher told me that if I would do some crooked work my child would be crooked; if I drank, my child would be a drunkard, etc. Well, I began to do some crooked work; of course, work that would not hurt anyone. I began to drink exactly at the time when the doctor here stated; it is the most dangerous for the offspring. Well, to make my story short, every one of my children are as honest as I am, if I am honest. They are all very honest, very sincere, studious, intelligent, graduates all of high schools and universities, but these things have not had any effect upon them whatever. If anything has any effect upon mental deficiency it is the environment.

Dr. Julius Grinker. I think Miss Pogue's paper a very excellent one. She has brought out some very fine points. No doubt the paper is a classic, and though we cannot agree with everything she said, yet I am sure the medical men and women here will agree with her in the essentials. Nutritional changes, I believe, are about the only thing that we can today get hold of, because the subject itself is shrouded in obscurity. It is more so than insanity itself. It appears that feeble-mindedness has its roots way back in our ancestors and is hastened by the immediate parentage, particularly by the nutritional changes going on in the mother and perhaps the chemical changes brought about in the father's make-

up during conception. As to alcoholism and anything tending to produce intoxication, I think there is no doubt that it serves as a factor, because we see daily epileptics and feeble-minded the offspring of alcoholism. But if the statement that the mental frame of mind immediately preceding the birth of a child has any effect, virtue or vice, I think that is phrenology. It is pure hearsay. At this time many women attempt abortion before the child is born; in other words, they use methods of preventing conception that are in the nature of poisons. They are taking poisons when they discover they have first conceived. I have myself come across several instances in which I am certain that the feeble-mindedness of the child was due to abortion medicine taken by the mother. But the great cause must be sought much further back, not perhaps in the immediate ancestry, but perhaps further back, and so we are again where we started. Feeble-mindedness is one of the greatest problems and it is only when the race will have established rules the same as we have in mating cattle; if we could just simply mate a true race with another true race, then only may we hope to produce normal offspring. But as matters stand today I believe that the problem cannot at all be solved and we still must do that which we can, viz., improve the nutrition of the father and mother and the infant in its early days.

Dr. Meyer Solomon: The paper of Dr. Pogue is, I think, admirable. It is extremely sane and she takes the subject up in a way which should meet with the approval of all people who consider the subject of the feeble-minded from a scientific and broad standpoint. The statements we have been hearing here this afternoon about the effect of the thoughts that an individual may have upon the offspring or statements which we have been hearing in regard to the history for thousands of years, remind me of theosophy, astrology and all those things which depend upon certain ideas which individuals have conceived and which they are fixed upon as a religion and which they stick to in spite of anything which may be said to the contrary. There has not been one iota of fact produced to show that thoughts of individuals before conception or any other time have any influence upon the offspring, except this, that certain trends which an individual may have, dependent upon the constitution and germ cells, may be transmitted to the offspring. If all the thoughts which we have or any of the special tendencies which we develop were transmitted to the offspring I fear that instead of being way up in the scale of development in evolution as we are now, we would be once more down to the stage of the ameba. If all evil at the time of conception were transmitted to the offspring, we would have an awful world. The law of nature has so arranged things that thoughts or even characteristics are not transmitted to the offspring. That is one of the fundamental things in biology about which there ought not to be any discussion at all, and we regret exceedingly that

some of the gentlemen drifted away absolutely from the subject discussed in Dr. Pogue's paper.

Dr. Pogue (closing): A discussion running so far adrift would not be permitted in some scientific meetings; it was almost a clinic. When you speak of environment, you must remember that the child is born into a family, is born in the same environment of the other children in that family. There is no different condition surrounding this particular one. In regard to Dr. Grinker saying that abortion may be one of the causes I do not know. If you think of the great mass of women I feel there are few trying abortion. It was recently brought up that professional bridge players are not bearing children. They are. Toxic drugs, of course, will produce toxemia just the same as alcohol, but I have touched my point in my paper.

THE CONTRIBUTION OF VISUAL IMAGERY TO VERBAL THOUGHT. A COMPARATIVE STUDY OF SEEING AND BLIND SUBJECTS.

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The problems presented by atypical individuals, be they insane, feeble-minded, retarded, criminalistic, blind, or deaf, when viewed from a psychological standpoint fall into three distinct groups—the diagnostic, the therapeutic and the research.

The psychologist has at hand a more or less vast collection of data concerning mental processes and conditions, which goes far toward making possible an understanding of an unusual mental type. These data are exact methods of applying them to individual cases, make it possible for the psychologist to render service in the clinical examination and subsequent explanation of atypical cases.

The psychologist is also equipped, as a result of the studies in genetic psychology and in the psychology of education with much information which guides him in discovering the best methods, be they educational or re-educational, of handling individual cases in order to overcome or to alleviate existing abnormal conditions.

These are the immediately practical, socially important problems. The third class of problems is no less practical ultimately. It is possible through a systematic study of the data collected in the examination of atypical individuals to contribute definite information to the science of psychology, information which will in time make the diagnostic and therapeutic work much

more positively useful than it is today. Experimental psychology is at the present time still in its youth, still in the period of rapid growth, the formative period, and the study of atypical individuals should in the next few years make important contributions toward its development.

Two years ago I presented before this organization one of the standardized diagnostic methods, last year I attempted to demonstrate the practical usefulness to the community of the application of such methods, for this meeting I have chosen one of the more technical research problems.

Given a complex situation to study it is always necessary to reduce it as far as possible to its elements. This is difficult to do, and still more difficult is it to isolate an element for study after it has been discovered. There are two ways of proceeding from this point, isolating the element as completely as possible for study or substituting a complex situation like the first but minus the element in question. The difference in the two situations can then be attributed to the element in question plus the results of its interaction on the situation in toto and on its parts.

Considering a mental experience of any given individual such a complex situation, the task of the psychologist is to analyze it into its simplest processes and discover the contribution of each to the extremely complex whole. The greatest difficulties encountered in the course of such an analysis arise from the complexity of even the most simple mental experience and the consequent difficulty while studying one aspect of excluding the modifying influences of others.

In atypical individuals the various mental processes are not so evenly balanced as in normal persons; it frequently happens with the former that certain aspects of the mental life stand out very prominently while other aspects are nearly submerged or entirely lost. With the insane for instance, some one emotional attitude may remain fixed for months or even years; it is apparently immune to all environmental influences and an unexampled opportunity is offered for its minute analysis. Among the feeble-minded we meet individuals whose development has stopped short of all the higher imaginal and rational processes and of all the altruistic emotions, and we have before us the phenomenon of the human mind deprived of those characteristics which have so-

cialized and civilized mankind. With the blind and the deaf the situation is still a different one. These persons are deprived of one of the avenues through which our perceptions of things are built up, they are each deprived of one of the chief classes of the elements of thought. The congenitally blind can never think of space, of form, of color as we do, for the elements of such thinking are absent. The congenitally deaf can never think of words as we do, and as thought is predominately verbal it follows that they cannot *think* as we do.

It may seem strange to state that possibly the most fruitful method of studying the contribution of vision to the thought processes will prove to be through a study of the thought processes of the blind and that possibly the most fruitful method of studying the contribution of audition to the thought processes will prove to be through a study of the thought processes of the deaf, but to me it seems most probable. Given otherwise normal individuals, we have in the blind and the deaf mentalities just like our own minus one important activity; the difference between the mentality of these individuals and our own then must be that one activity plus its interrelations with the other mental activities.

That there is a difference in the resulting mentality which cannot be overcome by intensive and specialized educational training is evident without scientific research to those who come constantly in contact with the blind and the deaf. On first visiting schools for these classes I was impressed by such statements from the superintendents as the following: "O I know the deaf so well, I know just what to expect from them. The deaf are a peculiar people, and one must know them in order to learn how to handle them," and "That is just what I should expect from a blind man, the blind are not just like seeing people you know; you learn to know them after living with them a while."

With this rather long preface I am going to present for your consideration a little study of the contribution of visual imagery to verbal thought, made by a comparative study of blind and normal persons. It is assumed first of all that much of our thought, if not all, is carried on by means of memory images of various modalities, that most of our consciousness apart from its sensory elements is made up of memory images,

the result of some past sensory experience. We all speak of seeing with our mind's eye; we are then, in more technical language, experiencing visual images. We also hear with our mind's ear, smell with our mind's nose, taste with our mind's tongue, and feel with our mind's fingers, though these figures of speech are not so generally employed. In these several instances we are experiencing auditory, olfactory, gustatory and tactual memory images.

A very large part of our thinking is carried on by means of words, by means of internal language as it is called, or more technically endophasia. Now our analyses of these word images show them to be made up of visual images, or memories of the appearance of words and letters, of auditory images, or memories of the sounds of words and letters, and of motor images or memories of the speaking or writing of words and letters. There is present besides a consciousness of the meaning of the word which seems to belong inseparably to the complex of verbal images which constitute the word experience.

Those of you who are conversant with the recent controversy on the psychology of the higher thought processes and of imageless thought, may of course, disagree with the last concept and perhaps with those that precede it, and those of you who have been following the thought of the behaviorists may think the whole discussion wide of the mark. Whatever future research may discover, the analysis above outlined is still widely accepted and the belief in the existence of imageless thought does not necessarily exclude the recognition of mental imagery also.

Most of our data concerning mental imagery depend in the last instance upon introspection, they are gathered by the introspective method; certain tasks are given to a number of persons who are afterward asked for an account of what and how they thought and felt during the experience. The ability to give such an account with any sort of accuracy or adequacy presupposes much practice and also a psychological viewpoint. One who has not the practice overlooks much of the experience and one who has not the psychological viewpoint does not know how to describe what he does observe. When it is possible to check up introspections with quantitative results or to dispense entirely with introspection and depend absolutely on quantitative results we

feel that we have secured a more reliable method.

In February, 1912, Miss Mabel Ruth Fernald, of the Chicago Normal School, published a monograph on the "Diagnosis of Mental Imagery." This study is a very interesting piece of work and reports the results of many kinds of tests made on a group of trained subjects. Introspections were obtained in all cases and the attempt was also made to determine whether any of the tests used had a purely objective value, that is, whether their quantitative results apart from introspections could be depended on to indicate what kinds of imagery the subject had employed. Miss Fernald found no test which she considered of value as a purely objective test but several quantitative results of which might be used in conjunction with introspection. Among the latter were two tests which seemed to be more adequately performed by persons who were ready visualizers. In the first test the subject was required to spell quite difficult words backward. The difficulty and unusualness of the task prevents an automatic reply and the mental processes used in its solution become apparent to the trained subject, and sometimes also to the experimenter. The second was a similar test: in it the words were spelled backward by the experimenter and the subject was required to name them. Comparison of Miss Fernald's quantitative results, that is, the errors made and time taken, with the subject's introspections, indicate that the subjects who were the best visualizers stood the best tests, although the results were not conclusive enough to indicate that the successful performance of the test necessitates clear visualization.

It occurred to me that we might get some additional evidence concerning the objective value of these tests in determining the use of visual imagery in a given subject, by testing them out on subjects who had no visual imagery, subjects who had been blind since infancy. A comparison of the quantitative results obtained from a group of such blind persons, with the quantitative results obtained from a group of seeing persons, would undoubtedly reveal whether the absence of visual imagery is a severe handicap in the performance of the test.

The blind subjects were six high school pupils of the Illinois School for the Blind at Jacksonville, the seeing subjects six normal adults all of them in the early twenties; four are teachers of

children and two are stenographers. All of these subjects were entirely unpracticed as subjects in any sort of mental testing, and all had sufficient education to rule out the ability to spell as a factor in the results. I later used the tests with five additional blind students, this time with the special aim of observing method and studying quality of errors.

The results briefly are as follows. The first test calls for the spelling of 22 words backward, the time for spelling each word, and the number of errors made were recorded. I then computed for each individual and each group, the average time, the average number of errors per word, and a general efficiency index. The efficiency index was secured as follows: 100 was arbitrarily assumed as a maximal accuracy grading per word, from this was deducted the average error per word and into the accuracy index thus secured was taken the average time, the result expressing

A
the general efficiency. The formula is $E = \frac{A}{S}$,
S

standing for efficiency, A for accuracy and S for speed.

The results for the seeing group are, average number of errors per word, 0.76, average time per word, 22.63 seconds, and efficiency index, 4.39. The results for the blind group are, average number of errors per word, 1.11, average time per word 25.91 seconds, and efficiency index 3.82. This is a difference in error of 0.35, in time of 3.28 seconds, and in efficiency of 0.57 in favor of the seeing subjects. The difference is not so great in any instance as that between the average of the least successful of the seeing group and the average for the seeing group—(0.83 difference in error, 15.17 seconds difference in time, 1.80 difference in efficiency), and not so great even as the differences between the averages for this same seeing subject and the averages for the blind group—(0.48 difference in error, 11.89 seconds difference in time and 1.053 difference in efficiency), *these differences being in favor of the blind.*

The second test calls for recognition by the subject of 22 moderately difficult words spelled backward by the experimenter. The speed and accuracy are both indicated in this test by the number of times it was necessary to spell a word before the subject recognized it.

The average number of words named on first

spelling by the seeing group was 15.83, the average number named on first spelling by the blind group was 14. The average number of times it was necessary to spell words for the seeing group was 1.47, for the blind group 1.56.

Again we have slight differences in favor of the seeing group, but differences so slight that they are exceeded as in the first test by individual differences in the opposite direction. One of the blind subjects named 19 of the 22 words on the first spelling and the average number of repetitions required by him was but 1.22.

In the first test the errors made by both seeing and blind subjects were of four kinds, omission, transposition, insertion, and substitution. The percentages of the total errors made which belong to each of these classes are, seeing group, omission, 64.8, transpositions, 14.1, substitutions 7.8, insertions 13.1; blind group, omissions, 37.1, transpositions, 31.7, substitutions 21.5, and insertions 9.7. Omissions form the greatest number of errors in both groups and transpositions rank next, while the blind exceed in substitutions and transpositions and the seeing in omissions.

The results for the blind in this comparison are taken from the results obtained from the second group of blind persons, whom I tested with the object of noting peculiarities of method and errors. These subjects were asked to repeat the effort to spell each word until success was achieved, and were encouraged to do their thinking aloud. In the first test all of the subjects spelled the complete word forward first, then backward either by syllables or some other system of grouping. The syllabication and grouping were evidenced by the decided pauses between groups of letters, and also at times, by lip movements indicating a forward spelling process preceding the backward spelling. Two of these subjects spoke of thinking of the letters as in the Braille, whenever they experienced difficulty with the words.

In the second test the most accurate subject of all repeated every letter after me in a low tone, and as a rule named the words immediately after the last letter was given. Very rarely she spelled a word forward before naming it. She said she placed the letters in space from right to left as I named them. The other four all spelled words aloud before naming them, some spelled first backward then forward, one never recognized a

word until he had spelled it completely forward, one sometimes succeeded in spelling the word completely and correctly without recognizing it, two spelled words partially and guessed the rest. All of these subjects spelled aloud the words that puzzled them, thus showing their dependence on the kinesthetic vocal element. Again several mentioned thinking of the letters as they would appear on the Braille.

From the results obtained I judge that the essential element in the visual imagery of words for the spelling process and perhaps therefore for verbal thought in general, is not its form but its relative spacial position, an attribute which the blind secures not through vision but through touch. This touch spacial attribute seems just as efficacious to the spelling process as does the visual spacial attribute. Perhaps its presence makes possible to the blind just as high a language development as is possible to the seeing person.

The fact that the visual element is not essential to a high degree of language development may perhaps account for the fact that the schools for the blind are able to carry their pupils to much higher levels intellectually than the schools for the deaf are able to carry their pupils. The auditory element in language seems to be an essential factor which cannot be supplied by any other element, consequently those ideas which are only developed in civilized man by the aid of language are never adequately attained by the congenitally deaf; the higher abstractions remain closed to them because their language development, their language understanding, is at best a crippled product.

The conclusions from the study are two. First, the tests in question have little or no value as objective tests for determining the use of visual imagery by a given individual. Second, that visual verbal imagery assists the spelling process rather through its attribute of relative space position than through its attribute of form, and that the attribute of relative space position can be equally well attained through tactual sensations.

CLASSIFICATION OF ERRORS.								
Seeing Subjects	Omissions		Transpositions		Substitutions		Insertions	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
1.....	6	86	..	..	1	14	..	..
2.....	12	60	5	25	1	5	2	10
3.....	10	53	6	32	0	0	3	15
4.....	10	84	0	..	1	8	1	8
5.....	5	72	1	14	..	..	1	14
6.....	12	34	5	14	7	20	11	32
Total	55	389	17	85	10	47	18	79
Average		64.8	..	14.1	..	7.8	..	13.1

	Omissions		Transpositions		Substitutions		Insertions	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Blind Subjects								
1.....	7	33	10	48	3	14	1	5
2.....	10	41	4	17	6	25	4	17
3.....	4	40	5	50	0	..	1	10
4.....	3	37.5	1	12.5	3	37.5	1	12.5
5.....	9	34	8	31	8	31	1	4
Total	33	185.5	28	158.5	20	107.5	8	48.5
Average		37.1	..	31.7	..	21.5	..	9.7

TEST 1—SEEING SUBJECTS.

	Sub. 1	Sub. 2	Sub. 3	Sub. 4	Sub. 5	Sub. 6	
Words spelled by subject							Group
Errors							
Time in secds.							
Complexity...1	13	3	14	2	8	1	15
Somnabulist...1	25	4	30	2	10	0	20
Superstition...0	24	2	36	1	25	0	15
Generosity...0	20	0	15	0	11	0	15
Contemporary...0	25	3	29	3	18	1	15
Requisite...0	28	2	25	0	15	0	12
Municipal...0	20	1	30	1	12	2	10
Ignominy...2	18	0	15	0	28	0	10
Fortuitous...0	18	1	25	1	20	0	15
Acquaintance...1	40	3	30	1	65	2	15
Unexempld...0	25	0	30	0	21	0	20
Symmetrical...0	18	1	18	3	22	1	20
Reverberate...0	18	0	12	0	15	0	15
Punctuation...0	22	0	21	1	12	0	24
Suitable...0	12	0	20	0	10	0	10
Sociability...2	41	0	60	0	20	3	30
Magistrate...0	22	0	20	0	15	2	15
Fraction...0	13	0	18	0	8	0	10
Daughter...0	10	0	15	0	8	0	15
Technicality...0	58	0	19	4	70	0	18
Irresolute...0	36	0	20	0	15	0	20
Knowledge...0	18	0	20	0	12	0	17
Words with errors.....	5	9	10	7	4	13	8
Ave. error in wds. with error..	1.4	2.	1.9	1.7	1.7	3.	1.95
Ave. error (all words).....	0.33	0.90	0.86	0.54	0.33	1.59	.76
Average time.....	23.8	23.7	20.	16.1	14.4	37.8	22.63
*Efficiency index.....	4.1	4.1	4.95	6.17	6.92	2.59	4.39

*Efficiency index = $\frac{100 - \text{Ave. error}}{\text{Ave. time}}$

TEST 1—BLIND SUBJECTS.

	Sub. 1	Sub. 2	Sub. 3	Sub. 4	Sub. 5	Sub. 6	
Words spelled by subject							Group
Errors							
Time in secds.							
Complexity...2	45	1	15	1	50	1	15
Somnabulist...3	45	4	30	5	35	2	30
Superstition...1	80	2	30	0	50	2	35
Generosity...1	55	2	45	0	30	2	15
Contemporary...0	40	1	50	1	40	6	30
Requisite...0	15	0	30	1	15	2	20
Municipal...1	25	0	15	0	38	2	30
Ignominy...1	20	1	15	0	20	0	30
Fortuitous...1	30	1	15	2	25	3	20
Acquaintance...1	30	0	30	2	40	3	30
Unexempld...2	20	2	20	1	30	1	30
Symmetrical...1	35	3	20	1	20	3	30
Reverberate...1	30	0	20	1	55	0	30
Punctuation...0	25	2	25	0	50	3	30
Suitable...0	12	2	15	0	12	1	8
Sociability...0	25	1	18	5	60	1	30
Magistrate...0	20	0	25	1	27	0	22
Fraction...0	10	4	10	0	10	0	10
Daughter...0	12	1	10	0	22	0	10
Technicality...2	60	2	30	1	30	5	30
Irresolute...0	30	2	33	0	43	2	20
Knowledge...0	40	1	15	0	35	2	18
Words with errors.....	12	17	12	16	18	6	13.5
Ave. error in wds. with error..	1.4	1.8	1.9	2.5	1.7	1.	1.71
Ave. error (all words).....	.77	1.45	1.	1.81	1.40	0.27	1.11
Average time.....	32.	23.4	33.5	23.6	25.8	17.2	25.91
Efficiency index.....	3.10	4.21	2.95	4.16	3.82	5.8	3.82

TEST 2—SEEING SUBJECTS.

Word spelled by Experimenter	Subject 1 Repetitions	Subject 2 Repetitions	Subject 3 Repetitions	Subject 4 Repetitions	Subject 5 Repetitions	Subject 6 Repetitions	Group
Stimulus	2	2	2	1	1	1	1
September	6	1	1	1	1	1	1
Concerned	2	1	2	8	4	5	5
Various	1	1	1	4	1	1	1
Description	2	1	1	4	1	2	2
Christmas	2	2	1	1	1	1	1
Predominant ...	6	3	2	1	1	2	2
Objects	1	1	3	1	1	1	1
Occurred	1	1	1	2	1	1	1
Dependence	2	1	1	2	1	2	2
Preceding	2	1	2	1	1	1	1
Remembered	1	1	1	1	1	1	1
Muscular	1	1	1	1	1	1	1
Operation	1	1	1	2	1	1	1
Musical	2	1	1	2	1	1	1
Whistling	1	1	1	2	1	1	1
Beautiful	1	1	1	1	1	1	1
Significant	1	1	2	1	1	1	1
Orange	1	1	1	2	1	1	1
Indication	2	2	1	1	1	2	2
Distinguish	3	1	2	1	1	1	1
Important	1	1	1	1	1	1	1
Named on first spelling	11	18	15	13	21	17	15.83
Average number times spelled..	1.9	1.22	1.36	1.86	1.13	1.35	1.47

TEST 2—BLIND SUBJECTS.

Words spelled by Experimenter	Subject 1 Repetitions	Subject 2 Repetitions	Subject 3 Repetitions	Subject 4 Repetitions	Subject 5 Repetitions	Subject 6 Repetitions	Group
Stimulus	3	..	3	3	3	1	1
September	1	2	4	1	2	1	1
Concerned	3	4	2	2	2	3	3
Various	1	1	1	1	1	1	1
Description	2	2	2	1	5	1	1
Christmas	1	3	2	1	2	1	1
Predominant ...	3	3	..	1	2	3	3
Objects	1	1	2	1	1	1	1
Occurred	1	2	1	1	1	1	1
Dependence	1	1	..	1	1	1	1
Preceding	1	2	..	1	1	1	1
Remembered	1	1	1	1	1	1	1
Muscular	1	1	3	3	4	1	1
Operation	1	1	1	1	1	1	1
Musical	1	1	1	1	1	1	1
Whistling	1	1	2	1	1	2	2
Beautiful	1	1	1	1	1	1	1
Significant	1	1	2	1	2	1	1
Orange	1	3	1	1	1	1	1
Indication	1	4	3	1	1	3	3
Distinguish	3	3	..	1	2	1	1
Important	2	1	..	1	1	1	1
Named on first spelling	16	11	7	19	13	18	14
Ave. number times spelled..	1.45	1.85	1.83	1.22	1.68	1.31	1.56

DISCUSSION.

Dr. Crohn: When one works with words one is working with objects that have so many collateral associations that we are in the dark as to time tests, as to error and other tests. But I think if figures have been used, an arbitrary number, say, from one to 1,789,910, that could not possibly call forth any painful memory or sad memory or be connected with the emotion trend of the subject, a lot of collateral issues would not be brought into the matter. Words are always connected with emotional pain. There is always something happening in our life that a word may bring forth, but if we take figures, they bring nothing to mind but the simple form of the figure, which rarely has any association with it. I think that had the experiments by Dr. Towne been conducted with figures instead of words they would have been clearer and less liable to error.

MEDICOPSYCHOLOGICAL WORK IN COURTS.

WILLIAM HEALY, M. D.

Director of the Psychopathic Institute of the Juvenile Court.
CHICAGO, ILL.

Medicopsychological work in courts is founded on the common sense necessity for accurate diagnosis and prognosis, preceding rational treatment. Now the prescribing of treatment, social treatment, is just exactly the business of courts which deal with offenders. A thoughtful jurist who came to observe and study said to us several years ago, after we had collected the earlier data which formed the first work of the Psychopathic Institute of the Juvenile Court, "I see the point: I am a therapist. Yet I am working in a blind way without diagnosis." He went back to Seattle, quickly established in his court a definitive department of diagnosis, made a physician his chief probation officer, and insisted that all cases which came before him should be accompanied by such medical, psychological and social data that he might have a chance to adjudicate the case properly. Judge Frater thus discerned the essential fact that advancement in court work must be along the lines that have characterized all scientific achievement, namely, the study of causations. In medicine this is called etiology and diagnosis.

Since then there has been a great awakening on this subject and a number of courts in this country have fallen in line. It should be thoroughly appreciated that the newer development of court procedure with offenders involves not only prescribing social treatment, but also the definite carrying out of therapeutic measures. The probation system is the most wide-spread evidence of this fact. The best illustration, probably anywhere, of the modern therapeutic endeavor of the court is to be seen in the remarkable organization of the justly celebrated Juvenile Court of Chicago. Judge Pinckney, with wise appreciation of the valuable service which science can offer to the law, has been steadily developing the practical idea of really understanding and properly treating individual delinquents.

With development of these better understandings many remedial agencies have been set at work. In the Detention Home the wards of the court profit by the daily attentions of a physician,

dentist, a corps of teachers, an instructor in physical training and resident nurses. The court sends to the best specialists all cases of defective vision and the many other ailments which need attention. It obtains country life for many of those who need it. It runs a definite employment agency which endeavors to place the individual at work for which he is specially fitted. It aims to place in proper institutions those who are afflicted. Above all, it endeavors to co-operate with relatives and awaken them to the needs of their own kin. So it has come about that in the sessions of this court one may hear considered the correlations between defective vision and failure in school or in employment, which, of course, lead directly to delinquency. One may hear discussed the relationship of epilepsy to moral unreliability, of the effects of various debilitating habits upon producing mental instability or lethargy, or the connection between mental defect and criminality. All these, and many other things, should be considered by officers of a court, as well as the more obvious effects of bad companionship, lack of parental control and other weaknesses in environmental conditions.

Judge Pinckney writes little and talks little, but works incessantly towards the end of rendering solid constructive service to both the state and the individual by looking after anything which may be logically considered to be a source of the tendency towards offense. I may quote a few words from his last report: "The responsibility of the judge is grave enough when all that investigation, experience and science can tell of the physical, mental, moral and spiritual sides of the delinquent is made known to him. Nothing short of a complete understanding of the actual facts in each case in so far as it is possible to know them will satisfy the conscientious Judge."

Now, although we all know the greater importance of bending the twig than of trying to shape the already inclined tree, let no one suppose these considerations of diagnosis and therapy have nothing to do with courts for adult offenders. Medicopsychological work, properly carried out, has far more fundamental values for society than mere consideration of the legally cherished, but often insoluble problem of responsibility. There are very many constructive measures which may be carried out.

This brings us at once to a vital phase of this

whole question of the application of scientific effort in court procedure. Here we have the chance to get eminently practical efficiency studies of the measures ordinarily carried out under the law. Nowadays it is not anarchists who are questioning legal values in dealing with offenders but it is some of the most experienced jurists themselves—none more forcefully concrete in their statements than Justice Rhodes of England, who wrote in the *British Medical Journal* asking what it could mean that of 180,000 convictions in a given year over 10,000 had been convicted upwards of 20 times before. It is an extremely remarkable fact that one may look in vain for studies emanating from any court or any jurist concerning the data of success or failure of measures carried out. Years of following up cases are of course, necessary, but nothing can be worth any more in the light of the vast expense which criminality is to society, causing an expenditure of from two to four million dollars a day in this country. Now, no studies of outcome can be valuable which are not based upon earlier diagnosis and prognosis—upon the essential predictabilities of the case. Did this given individual have such mental or physical qualifications that he could be expected to succeed under probation or parole; or could it be thought that he would be affected for the good and society ultimately benefited by his incarceration?

There can be no doubt that a considerable portion of offenders will always have to be dealt with by way of retribution and with the idea of the deterrent effect upon others in mind. But even there the diagnosis of capabilities and knowledge of the promise of the future should in all common sense be the keynote of handling the individual during incarceration. This should be done that society itself may not be the ultimate sufferer when the individual returns to it.

The actual basis of psychological work in connection with offenders lies in the fundamental fact that conduct is the direct result of mental life. Misconduct may sometimes imply aberrational mental life or primary mental defect, but there are a thousand and one influences, environmental or directly physical, which may give the impulse towards delinquency.

There has been a tendency all along in the history of criminology to promulgate some given theory in explanation of crime in general. Often

such a dictum has been based upon special observations made in this or that country and under this or that special situation. The result has been astounding statements concerning the relationship of various physical and mental conditions to crime. The medicopsychologist in court work who pursues the method of the psychiatrist and studies the cases by longitudinal as well as cross-section methods, comes to see the vast intricacies of causation. No part of it is simple. It practically always requires the effect of environmental influences to create a criminal out of even a mental defective. Those who will undertake studies of the offenders in the open, as Devon says all offenders should be studied, and get the background of their family circumstances and their developmental history, their heredity, their early habits and so on, will come to realize, as we have realized in our years of careful investigation, that:

1. Thorough study of criminals which includes their mental traits is altogether a new-born science. Time shows that large general statements usually have to be greatly modified in this as in other fields newly opened to research.

2. The complexities of the human mind are so great that predictabilities are not safely made upon the basis of half hour studies of the individual. One comes to know many cases which demonstrate the unreliability of prognoses made according to large categorical valuations.

3. Short cross-section studies, then, are not enough in the vast majority of cases to answer the problems which the courts need answered.

4. A significant class of delinquents is the mental defectives, but even among them are great individual differences in regard to capabilities. Those who grade on the same age level according to the newer methods of measurement may be adaptable to widely varying conditions. A larger variety of tests will bring out these differences. After one has witnessed such cases as that of a feeble-minded burglar, a fellow with a long record and with great manual dexterity, succeed as an honest man in country life where he could use his special talents, one becomes less sure about many dicta.

5. Because a great share of those who are caught are mental defectives is no sign that anything like the majority of crimes are committed by the feeble-minded. The bright offender, we

find, may have fifty crimes to his record before he is captured, where the moron, on account of his lesser astuteness, is easily recognized and apprehended after perhaps a single offense.

6. If the causative factors are fair-mindedly studied out, one finds vast sources of the trouble in parental life, or in other surrounding conditions. Among the parents of 1,000 cases of young repeated offenders carefully studied, 31 per cent were found to have at least one parent more than a moderate user of intoxicating drinks. Immorality, quarreling, poverty, broken-up families in 67 per cent of the cases were factors. The lack of healthy mental interests was an astonishingly large source of trouble, as was also bad companions.

7. In this 1,000 cases 7 per cent were epileptic, and in 53 other cases, where the offender was not epileptic, another member of the immediate family was subject to convulsions. 7 per cent had some form of psychosis. About 15 per cent were feeble-minded. About 65 per cent, however, had nothing discernible the matter as mental defect or aberration.

8. Physical conditions causing irritations and disabilities which tended toward delinquency by influencing the mind in this or that direction were contributing factors in at least one-third of the cases. Sensory defects occupied an important place in this group. Premature development, among girls especially, is a direct source of moral break-down.

9. The factors in the individual case are most frequently not at all brought out in courts where adults are tried. The disposition of the individual is most often made without any deep consideration of the needs of the offender or of society.

10. Co-operation between courts and other public institutions is astonishingly small. What was known of the individual in other cities, or in a given institution, or even in another court in the same city, is rarely brought forward in the case. Indeed, in most courts there is no attempt to make or preserve a record of the case in any such way as might lead to better understanding of him in the future.

11. The difficulties of ascertaining the efficiency of this or that given type of procedure under the law are, through all the above circumstances, very great without the introduction of some scien-

tific method. It is time that such was begun by courts everywhere.

The medicopsychologist must take the ground of studying the whole individual and the causative factors of his career. Here is John Doe under arrest. One must find that he has (1) such-and-such physical characteristics, including both his special abilities as well as disabilities, and (2) such-and-such mental qualifications, disabilities, aberrational tendencies and general traits; (3) he has committed such-and-such types of delinquent acts; (4) in the background there are such-and-such conditions of heredity, physical development, traumatism, early teachings of immoral conduct, bad personal habits, lack of educational opportunities, and so on; (5) then in the light of the offender's being what he is physically and mentally, and having this given background, on the basis of easily knowable predictabilities something like a justifiable prognosis can be offered if such and such treatment is afforded under whatever environment may be available.

Such are the possibilities of medicopsychological work in courts. The whole study is to be directly aimed at predictabilities, just such as the court should wish to know, and conclusion cannot fairly be reached without knowledge of a great many of the various capabilities of the offender and of whence arose the tendency to delinquency.

If judgments of courts are to be ruled by reason, then the science which explains tendencies and actions will play a large part in rendering more efficient the whole legal and penal procedure.

DISCUSSION.

Dr. Munro: There was so much in the paper that is valuable I certainly could not discuss it without careful study.

Dr. Williams: I confess I have entertained ideas contrary to those advanced in the paper. I want to confess having particularly to do with the insane and more with the insane criminals, having to do with the individual confined to the reformatory and seeking to be transferred to an institution for the insane. I realized I was not dealing with the offenders such as those individuals dealt with in the paper, but I will say I enjoyed the paper and I know that the deductions from the paper can be but beneficial.

Dr. George Bliss: It is an interesting subject, but I am working with the feeble-minded. There is just one point that seems to me of some importance in this matter, that these feeble-minded individuals, the criminal who repeats again and again his offense as compared with the criminal who makes a mistake

or a slip and is accorded another chance and makes good. It seems to me there is a marked distinction between them and there is a point that I do not believe we bring out enough in our discussion of the defect of the criminal. The hospital criminal who offends again and again is, in my opinion, very frequently defective. He does these things because he is defective.

Dr. Crohn: There is one feature of the paper that appeals to me particularly, because of its practical tendencies. It is a paper from a laboratory man. I find there is a difficulty in the actual examination of prisoners such as I meet in the county jail and elsewhere, problems that are not exactly met with by the laboratory methods. I am not disposed to criticize the laboratory methods, but rather the tendency to make justifications or conclusions, thinking that they will fit these specific cases. There is no general rule by which any man became a criminal. His case is distinctly individual and you cannot draw these conclusions from laboratory tests and make them fit the solutions that you have to meet with.

Dr. Healy (closing): I really have nothing to say because I agree with everything that has been said and all the points that have been made.

Thursday, July 16, 9 A. M., Hotel La Salle.

Chairman: Meeting is called to order. The chair will take the privilege of inserting a paper that inadvertently did not get on the program.

RE-EDUCATION OF THE ATTENTIVE CONTROL.

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Many difficulties have and are being met by those who are endeavoring to rationalize psychotherapeutic procedure. The two difficulties which are the hardest to surmount are its supposed simplicity on the one hand and its reputed complexity on the other. Many physicians believe that nothing new has been recently discovered relative to the treatment of disease by mental means. A small group assert that psychotherapy constitutes a special branch of medicine and is so complicated in its application that the general practitioner cannot understand and use it. Both of these groups are in error. No physician can successfully use this therapeutic agent without some training, but the method has been so far rationalized within the last few years that it can be used now with scientific accuracy in overcoming many abnormal and distressing conditions; and if properly applied will be found as exact and as definite in its action as any other therapeutic agent.

Many physicians fail to recognize the very great importance of the subjective factor in medicine. It is certainly occupying a position of greater prominence in disease today than ever before. Even the simple neuroses often have a mental cause in the life of the individual which is just as potent as has been the physical cause in the production of a heart murmur. This failure to recognize the mental cause has greatly increased the difficulties of treating these conditions. We should, in so far as we are able, determine the exact cause of the condition which we are called upon to treat. After we have determined the potent etiological factor, whether it be mental, physical or both, we should neglect neither in the application of our therapy.

Many practitioners, finding upon examination no physical cause for a disease, will advise the patient that there is nothing the matter with him, that his condition is entirely imaginary and he should straightway forget it. The patient may already know that his condition is imaginary and he wants above everything else to forget it but that is just what he cannot do without intelligent aid and that may be why he has consulted his physician.

The physician has not done his duty who does not search the mind of the patient in appropriate cases for the source of his discomfort in exactly the same spirit in which he searches the body of the patient for the source of other discomforts. This procedure is not very complex and requires no great amount of special training on the part of the practitioner.

The method of procedure is somewhat as follows: First, ascertain and estimate the physical causes, then investigate and determine the mental attitude of the patient toward his ailment. This can generally be best accomplished by permitting and encouraging the patient to tell his complete story rather than by a primary process of interrogation on the part of the physician. In this manner the patient's false point of view, which has led up to the neurosis, is usually revealed.

The physician should then attempt to explain why such a series of events or affects could and might produce the effects that obtain and having to the fullest possible degree impressed the patient with the correctness of the physician's point of view the process of re-education begins.

This is accomplished by carefully explaining to

the patient the correct way to mental health, emphasizing his previous misconceptions and endeavoring to establish more rational mental adjustments. There is generally a tendency on the part of a neurotic patient to exaggerate and overestimate his subjective sensations. This tendency induces many physicians to make a diagnosis of mere imagination, then advise the patient to forget it and dismiss the matter as being of no importance. They fail to recognize that there is a psychic factor which is responsible for the undue inflation of the subjective value of the sensory experiences.

One of the most common mental factors in the production of the neuroses and the neuro-psychoses is the loss of the power of attentive control. In our scheme of school education, attention is of paramount importance and the child who finishes his school work without having an adequate degree of attentive control had just as well have stayed at home; and will perhaps later in life have to receive a course of re-education from the judge or the physician.

Dr. H. Crichton Miller states that the attentive control is the one aim of all true education, but our educational system is dealing with it less successfully now than previously and that when failure of attentive control manifests itself in later life, as in ill health, it falls to the physician to correct it. The number of persons who manifest a loss of attentive control is increasing at an alarming rate. In practice, these patients are known as neurasthenics, psychasthenics, hysterics, anxiety neuroses and some of the obsession psychoses. The symptom is much the same in all. The patient is a victim of indecision, he cannot make up his mind on any subject, he has lost the power of mental concentration, he has lost his will-power and in many instances his mind seems bound with unbreakable chains to one particular idea. Many patients are made miserable because of their inability to accomplish the work which they have been daily doing and by the fear of failure. This combination of symptoms is responsible for many business and mental breaks. Others are absorbed in an idea of ill health. Their minds constantly dwell upon this idea and no other seems to make any impression. A fear of insanity and the thought ever present that they are going insane destroys the happiness, impairs

the mental and physical capacity of a very considerable number. There are many other types too numerous to mention. With all of them the loss of attentive control is the most insistent and prominent symptom and when they regain the power of attentive control, their health is most commonly restored.

Some considerable discussion has arisen as to the nature of attention and its relation to the will power. With modern psychology there is a tendency to use attention and will power synonymously.

Huxley defines the aim of all true education as follows: "To enable us to do the things we ought to do, when we ought to do them, whether we like them or not." I would supplement that definition by saying, that the aim of all true education is also to enable us to think the thoughts we ought to think when we ought to think them whether we like them or not.

Munsterberg says: "Mere learning is no substitute for training of mental energy. Habitual rushing to new and ever new impressions may easily interfere with the development of persistence in character. Whether the will is allowed to start on one thing and then to be pushed to something else or whether it is forced to hold on against all difficulties makes the difference which counts for life." "An education which spoils the mind and never demands real effort, which simply follows the likings and interests, leaves the adolescent individual in a flabby and ineffective state." On the other hand the training of attentive control insures strength in any sphere, even though the gift be small. The mind that has learned to resist distractions, can hold its own in any field."

Aiken says, "I would define education, moral and intellectual, as attention." All classes of temperament and persons do not require for the execution of their work the same amount of attentive control.

The artist's and poet's work does not require voluntary attention as does the work of the lawyer, doctor, the teacher. If the artist controls his associating mechanism with the same degree, he cannot produce good and inspired work. The artist and poet alike generally have so little control over the range of their consciousness that they are very commonly the victims of moods, of obsession and of phobias. A development of their

attentive control might make them better citizens but would perhaps spoil them as artists or poets.

Dr. H. Crichton Miller classifies the views of attention offered by modern psychology under two headings, descriptive and explanatory theories. Descriptive: first as motor, second as sensory, third as sensori-motor. Explanatory: first as facilitation of ideas, second as inhibition of ideas, third as both.

Ribot is the champion of the motor theory. His view is that the muscular accompaniments constitute attention plus the objective side, that is, the state of consciousness which results. He says our only possible conception of the will is our idea of the action of the voluntary muscles. McDougal, Stout and others criticize this theory as not being sound. The sensory description of attention as expressed by Marillier is as follows: "A state of consciousness which is the result of temporary predominance of one representation over the moment or over the representations which are co-existent with it at any moment." According to this description the original sensory excitement is reinforced by sensations caused by the muscular changes which are themselves the result of the first excitation. Neither of the above theories are satisfactory. The next definition of attention as a sensori-motor phenomenon as laid down by Wundt, Waller, Kulpe and others is much more acceptable. It is sensory in its contents, motor in its manifestations and sensori-motor in its processes.

As stated above the explanatory theories of attention are also three. The first of these theories, the one of facilitation of ideas, is advanced by Muller and others. Muller states that attention reinforces its object in three ways: first, adaptation of a sense organ; second, facilitation of apperception corresponding to stimulus in central nervous system; third, recollection of similar ideas previously experienced. This theory does not take into consideration a well known fact that the mind also has power to inhibit ideas.

Wundt goes to the other extreme and emphasizes entirely the inhibiting of attention. He divides the process into two essential and two non-essential factors. The two essential are: first, increase of clearness of definite ideas or groups of ideas accompanied by the feeling which is characteristic of the whole process from the beginning;

second, inhibition of other available impressions or memorial images. The two non-essential factors are,—sensation of muscular strain with the sense feelings which belong to them and which intensify the primary feeling; second, the intensification of the sensory contents of the apperceived idea by these strain sensations through the medium of associated co-excitation.

Wundt defines the lumen of intensity as equivalent to the threshold of consciousness. That is, we perceive only what rises above the level. The limen of clearness as equal to the threshold of attention; that is, we apperceive only what reaches this high level. The second of the so-called essential factors, the inhibition of all impressions and memories excepting those attended to, he has associated with the frontal lobes, the so-called apperceptive center. Munsterberg and Bastian have criticized him for attempting to create a faculty of attention and of locating it in a definite region of the brain. Wundt has replied that there is no attention as such but only ideas attended to and changes in ideas which constitute our attending are accompanied by a physiological process primarily in the frontal lobes.

The third explanation of attention is that advocated by Exner. He considers it to be a combination of the facilitation and inhibition of ideas. He compares inhibition with reflex action or the inhibition of a reflex response by the action of a higher center. This theory is certainly the most appealing of the three explanatory theories. Munsterberg regards attention as an act of will. The entire process being dominated by the end in view which is bringing more vividly and clearly the given content into consciousness, or, in accordance with his theory every act of will is an act of attention, in that the mechanism of a voluntary act is not conscious but is made possible by the apperception of the idea aimed at. From all these views, mutually antagonistic as some of them are, Miller has deduced the following points: first, from the physiological standpoint the process is sensori-motor; second, from the psychological standpoint it encourages the facilitation of one idea with a corresponding inhibition of others; third, the limen of intensity is distinct from the limen of clearness; fourth, in practice we may regard attention and will as equivalent.

A discussion of these various theories now leads

to a consideration of the practical bearing of attentive control on subjective symptoms, from a therapeutical standpoint. It must be obvious to us all that the power to facilitate an idea is proportionate to the power to inhibit other ideas. The more absorbed we become in our work and our studies, the less attention do we give to subjective sensations. If we keep the limen of clearness high we do not apperceive a competing idea. But if the competing idea is constant and insistent, its apperception is obviously dependent on the amount of interest which we are able to maintain in our work. The question of pain and pleasure in relation to attention is an important one. Sully regards all interest as an affect of attention while Stout asserts that it is merely the result of attention. Sully's view appears to be sound. Attention may imbue an uninteresting act with interest. This really is what we desire to cultivate in our neurotic patient; the power through his attention of being able to determine his own area of consciousness and that with the least amount of effort. His greatest difficulty is that his imagination keeps his threshold of consciousness so low as regards his organic sensations that some stimulus, abnormal in character, is constantly entering his consciousness and constituting a suggestion. Miller also makes a distinction between concentration of the attention and mere fixation. Fixation he considers to be one of the essential conditions of going to sleep. The mind that gives itself up to an endless pageant of ideas represents one of the best known types of insomnia. Concentration is not compatible with sleep. There is spontaneous or involuntary attention as contrasted with concentrated or voluntary attention and many insomniacs oscillate between a vacuous condition of spontaneous attention and a state of connected and concentrated attention.

The more practical part of this paper is that which discusses the methods employed in the re-education of the attentive control after its loss has been demonstrated. The two oldest and perhaps best known methods are relaxation, and rhythmic breathing. I shall discuss briefly their psychological significance. Relaxation of the body, implies cessation of any voluntary muscular movement. In the first place it stops the numerous outlets of nerve energy and in accordance with McDougal's theory allows nerve potential to rise

for use in the direction desired. When our attention is intensely concentrated voluntary movements are inhibited. In order that this condition may obtain, our attention at first must be of a voluntary or concentrated type. Voluntary movement is inhibited and we attain to the relaxed bodily condition which favors voluntary attentive control. Munsterberg explains it as follows: Suppression of opposing movement secures inhibition of interfering thought. Shiftless minds are more directly forced into service by systematic control of motor response. Its application begins with motor activities or even control of motor activities are reinforced in such a way that they themselves enter into the center of attention. The technique of relaxation is so simple that it does not require deep explanation. Rhythmic breathing is another very old and well known method of developing psychic control. When we give no attention to our breathing we breathe rhythmically and with a fairly constant rate. If we desire to change the rate and rhythm which are normally automatic and involuntary, we must give the subject our undivided voluntary attention for just as soon as we neglect to do this we immediately renew our normal rate of rhythm. Various methods have been suggested in connection with this procedure, breathing a certain number of times per minute, breathing rapidly for a given time and then slowly for a like period; breathing regularly and rhythmically for a period of time or for a certain number of cycles and then interrupting the breathing for a given time. Any of these methods or other variations require voluntary or concentrated attention for their execution and will be found of much value in the re-education of the attentive control.

The following methods which are somewhat more complicated have been suggested by Miller for the same purpose. He differentiates between exercises which aim at holding the attention with a minimum of effort and those which demand effort. The former he considers to be useful to prevent introspection to raise the threshold of consciousness for the time being. The latter are more educative in their aim. The scholar who has broken down after over-work who is capable of controlling and even abusing his attentive powers, does not require a re-development of attentive control, but should be prevented from introspection. For him light literature, games of

patience and jig-saw puzzles are useful. For the leisurely society woman who has never concentrated her attention on anything more serious than a tango tea or a comedy, exercises requiring more effort of concentration should be advised.

The following methods are given in the order in which they demand concentrated effort beginning with the easiest:

First, pointing with the outstretched leg or arm at a given mark. Those who co-ordinate well will find this exercise easy, those who do not will find it more difficult than they anticipate.

Second, balancing is a very similar exercise. This exercise becomes involuntary and decreases in value with practice. A stick balanced on the finger or head are the customary procedures.

Third, letter games (word making) can be made useful and interesting by introducing the element of speed.

Fourth, reading a book up-side-down is a useful exercise but the time required to read a given number of lines should always be determined. If the exercise is receiving the attention of the patient, the time will be shortened with practice.

Fifth, writing with two hands is an exercise of value and the obvious improvement with practice will encourage the patient. Writing or drawing with the eyes fixed on a looking-glass in which the paper is reflected is much the same.

Sixth, describing accurately an object or picture which has been examined for a limited space of time develops the powers of observation and the memory.

Seventh, detailing a number of articles, say twenty, exposed for a short time is an exercise in which memory counts for more and observation for less.

Eighth, counting with the eyes fixed on a given spot, say counting up to a hundred slowly without moving eyes or lips, at the same time without allowing a single extraneous thought to occupy consciousness for a moment.

Ninth, following with a pin the second hand of a watch, is a good exercise.

Tenth, this exercise is recommended by Munsterberg, Muller and others as being of great value. It consists of striking out of a given vowel from a column of a newspaper. The exercise should be carried out with a view to three points: first, accuracy; second, speed; third, ignorance of

contents. Columns of equal length should be given to the patient every time. Speed and accuracy should be noted after each test so that the improvement may be determined.

Vittoz in his most valuable work suggests the following five classes of exercises for concentration. First, the symbol of infinity or the figure one; second, the ticking of a metronome; third, the tactile sense; fourth, affected parts of the body; fifth, ideas. The above exercises must be used intelligently and adapted to the individual patient and his environment.

CONCLUSIONS.—Psychic factors exercise much influence in the development of many neurotic conditions and should be searched for as carefully as physical factors. In many of these conditions the threshold of consciousness is lowered to such a degree that concentration and fixation of attention is impossible, and the patient has lost the power of inhibiting subjective sensations and unbidden ideas. The most successful method of correcting these abnormal conditions is by a process of re-education of the attentive control. This can generally be accomplished by proceeding along the lines as suggested above.

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DISCUSSION.

Dr. Lindsay: These practical things are the things most useful, whatever we may do to aid in restoring this class of very unhappy people. Many of the things the doctor mentioned we ought to make use of.

Dr. Williams: I enjoyed the doctor's paper, "The Re-Education of Attentive Control," very much. I think the doctor would have mentioned many other points if he had the time. The occupational industries offer also a method of educating this control, and we know it is one of the most practical of treating a large percentage of our patients in mental diseases.

PREVENTION OF EPILEPSY.

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Although the subject of this paper is the prevention of epilepsy, a few words bearing on the importance of the disease may not be out of place. The general public has little conception of the prevalence of epilepsy; even the members of the medical profession fail to realize the large number afflicted by this disease.

No very accurate statement as to the number of epileptics can be made as only a small per cent. receive institution care and those at home are to a great extent kept out of public view; however, we know that the number is large. Church says, "It is statistically proved that there is more than one epileptic for every four hundred of the population in this country."

Spratling in his work on epilepsy endorses Peterson's estimate of the ratio of epileptics as one to five hundred. He adds, "I do not feel that this statement is too high, indeed it is scarcely high enough."

Turner, the eminent English authority, says, "In Europe and the United States the approximate ratio of epileptics varies from one to three per one thousand of the general population."

The population of this country is nearly if not quite one hundred million, which would give an epileptic population of two hundred thousand. This is about the number of committed insane in institutions in the United States. To be conservative let us reduce the number by twenty-five thousand and say that we have one hundred seventy-five thousand epileptics in this country; as an abstract fact this is somewhat hard to comprehend but by comparison it may be made more concrete. The state of Wyoming now has an estimated population of 168,000; Atlanta has 179,000; Omaha has 133,000; Spokane has 135,000.

Think for a moment of Atlanta with its present population gone, it could almost be repopulated by our epileptic citizens.

The Report of the Committee on Mental Hygiene gives some forceful illustrations to impress the number of committed insane in this country. As these illustrations apply equally well to epilepsy two of their statements are repeated here.

"The officers and enlisted men in the United States army number 82,365, in the navy 50,476; in the Marine hospital corps 9,854; making a total of 142,000. At least 30,000 less than our epileptic population."

As a further comparison it is stated in this report that the students in colleges and universities in the United States number 184,000; we could almost fill their places with our epileptic citizens.

Chicago's population is estimated at 2,400,000; more than 4,000 of them are epileptic.

Having shown the size of the problem the natural thing is to ask, What can be done about it? Cures in epilepsy are infrequent, especially after the disease has existed for a period of years, therefore prevention is of paramount importance.

Practically all authorities agree that heredity is a large factor in the causation of epilepsy, a few writers contending that almost all epileptics are of defective stock.

Starr says, "Heredity is the most potent predisposing cause." Gowers gives forty per cent. of cases as due to heredity; Spratling says fifty-six per cent.; Turner in a study of private and hospital cases found heredity in fifty-one per cent. Church states that "Heredity plays a very important part in the causation of epilepsy." Vorkastner says, "In the overwhelming majority of cases it is a hereditary, constitutional, neuropathic predisposition on which epilepsy develops."

Krapelin in one of his clinical lectures declares, "Defective heredity is the most frequent predisposing cause of epilepsy."

The statistics of the Kansas State Hospital show that in about forty-five per cent. of the admissions no cause could be ascertained, largely due to defective histories in chronic patients; that the disease in twenty per cent. of the whole number admitted was probably due to heredity, or if based on the number in whom a probable cause could be determined the percentage would be nearly doubled.

Studies by Weeks, Davenport, Rosanoff and others tend to show that epilepsy is a Mendelian recessive, closely related to feeble-mindedness and other nervous conditions or that these conditions occur because of the lack of some factor which determines nervous stability.

If Mendel's law does hold for epilepsy and the proof while not wholly convincing is strong, we can understand the tremendous importance of heredity as a cause of epilepsy. Observers tell us that the children of two distinctly feeble-minded persons are always feeble-minded and those of two epileptics in whom the disease is not acquired are always epileptic or feeble-minded; this would be according to Mendel's law that recessive always breed true. Some dispute this statement but it at least comes very near the truth.

With the unquestioned importance of heredity

as a cause of epilepsy the theoretical means of prevention need little discussion.

Briefly, we should stop it at the source! The practical solution is far different. Education is one of our chief means of effort, often unappreciated, misunderstood or even resented, nevertheless it should be continued. Let the people know the truth and some will profit by it.

Segregation is desirable for most epileptics but as yet can reach only a small number. Illinois with ten thousand epileptics, after years of waiting has at last made a start towards an epileptic colony.

To properly segregate the epileptics of Illinois there should be at least five colonies; from the standpoint of cost to this generation this is impractical.

From the standpoint of prevention epileptic women of a child-bearing age should be segregated first.

Sterilization as a means of prevention is theoretically desirable but probably will not be practical as a method of prevention for many years to come, certainly not on a broad scale.

At this time there is no general or effectual sterilization in this country and except at the Indiana Reformatory there never has been.

Some laws have been passed bearing on this point but they have been so surrounded with restrictions and involved in questions of constitutionality as to be altogether useless. Until our ideas of personal liberty and the sanctity of the reproductive function change it is idle to hope for much from sterilization. Further, if epilepsy follows Mendel's law, the impure dominant would appear as a normal individual and could not be sterilized while he would carry the possibility of transmitting epilepsy.

One rather effectual remedy remains, a strengthening of the marriage laws so that it would be very difficult for an epileptic or other defective individual to marry. Of course this would not prevent irregular sexual relations but special laws protecting epileptic and feeble-minded females might be secured together with close segregation for sexual offenders of both sexes.

Speaking of the marriage of epileptics the superintendent of the Kansas State Hospital says in a biennial report:

"Of the total number of male patients received

during the period who had attained the age of twenty-one years at the time of admission 30 per cent. had been married and of the females eighteen years of age 56.8 per cent. had been married." Such conditions suggest the need of different marriage laws.

Before discussing the next causative factor it may be well to reiterate that heredity is the great cause and until methods are devised to stop procreation by the unfit society's burden is certain to become heavier as defectiveness, including epilepsy, is increasing faster than the general population.

A second cause of epilepsy and one in which prevention is important comprises those conditions known as infantile cerebropathies. This cause has not been recognized as fully as its importance deserves. In a series of patients admitted to the Kansas State Hospital during a recent biennium over 14 per cent. of those admitted and 25 per cent. of those in whom a probable cause could be determined were epileptic because of an infantile cerebropathy. Some of these cerebropathies are birth injuries due to prolonged labor or instrumental delivery, perhaps some are even prenatal. Obstetrical forceps are a useful and necessary part of a doctor's equipment but their improper and careless use is responsible for many a case of imbecility and epilepsy. A few patients in whom fright in infants or young children have produced cerebropathies are suggestive. In one case under my observation the fright induced by the noise of a charivari party caused a severe convulsion in an infant in arms, followed by a pronounced hemiplegia and epilepsy.

Prevention means in such cases better care; the simple and not the strenuous life for infants and children, particularly nervous children.

A very common history in infantile cerebropathies is as follows: A healthy baby, when about a year old gastro-intestinal disturbance often due to eating freely of improper food at the family table, a severe, prolonged convulsion, usually with high fever, which is attributed to worms, a slow convalescence followed by some permanent muscular weakness; after a period, petit mal attacks followed by grand mal. Probably many lesions occur in parts of the brain

which do not directly affect muscular development and so are not recognized as cerebropathies.

The pathology of these conditions is disputed, certainly many are infectious, some are vascular, probably many, perhaps most of them come in those who by heredity are predisposed. Oppenheim holds strongly to this idea. Better obstetrics means fewer birth injuries; better care of young children, especially as to diet, means fewer infantile convulsions, both of which mean fewer epileptics in later life.

In this connection head injuries in older persons should be mentioned. In this mechanical age head injuries are common. Nearly every epileptic has a history of some injury which usually has no significance, but there are a large number of people who receive severe head injuries, such as depressed fractures and later develop epilepsy. After the disease is established operative measures may relieve but the outlook is uncertain. Every depressed skull injury should receive prompt surgical treatment as a means of preventing epilepsy if for no other reason.

Syphilis and alcoholism play a considerable part in the etiology of epilepsy. Cases of epilepsy developing during the secondary stage of syphilis have been reported. That it is a factor in the causation of senile epilepsy is unquestioned. In the Kansas State Hospital are several patients with congenital syphilis, the fathers of two of these children dying in other institutions of paresis. It is probable, however, that syphilis as a cause has been overestimated.

Lastly we may consider among preventable epilepsies those which originate in the declining years. The popular teaching has been that senile epilepsy is an unusual condition; I believe that its frequency has been underestimated. About two years ago, impressed by the number of epileptics advanced in years and by the extreme difficulty in caring for them, I gave special attention to this condition, studying the first one thousand patients admitted to the Kansas State Hospital. Since that time two hundred-fifty more patients have been admitted. Among these one thousand two hundred-fifty patients have been exactly fifty whose epilepsy developed after fifty years of age, just 4 per cent. of the whole number admitted. If we deduct about fifty patients from the whole number admitted who

were not epileptic our percentage would be even higher.

This percentage is quite unusual: Turner, Spratling, and Gowers report a decidedly smaller percentage.

My list may be reduced by eliminating a few patients in whom the diagnosis is questionable, and also by allowing for inaccurate case histories, but even with these deductions the number of genuine senile epileptics remains remarkably high. Nearly all these people were personally known to me; at least half of them gave the impression of being above the average in natural endowment, a considerable portion having been well to do and respected citizens.

What I wish to bring out is that these patients were not degenerates nor defectives, but had been active and useful citizens who in their declining years became epileptic and in most cases insane.

The average age at which the epilepsy developed was a little over sixty-two years. Most authorities tell us that senile epilepsy is usually due to syphilis; perhaps this is one of the statements which have gotten into books and have been taken on faith; while laboratory tests were not made in these patients there were no clinical reasons to suspect syphilis in most of them. A few were alcoholic, several had suffered an apoplexy, but most of them were plain, hard-working people. Most of them had vascular or cardiac disease. I do not believe them syphilitic, I do believe that the pathological condition in most such cases is a cerebral arteriosclerosis.

Prevention, then, means the prevention of arteriosclerosis, a problem only partially solved. Most authorities agree on a temperate, moderate life with the avoidance of excesses. Perhaps Metchnikoff's sour milk treatment has a great deal of truth in it. What I wish to assert is that the number of senile epilepsies has been underestimated and that the prevention of arteriosclerosis will prevent a considerable number of such epilepsies.

In closing the following points may be summarized:

1. In the United States there are at least one hundred seventy-five thousand epileptics, a number about equal to the population of the state of Wyoming or the city of Atlanta.

2. Heredity is the GREAT CAUSE.

Theoretically we should stop it at the source by sterilization: practically we must look to three measures:

- a. Education.
 - b. Laws restricting marriage.
 - c. Segregation, especially of females.
3. Infantile cerebropathies are the cause of many epilepsies; better obstetrics and better care of young children are sorely needed. Prompt surgical care of head injuries is extremely important.
4. Lastly, I wish again to emphasize the importance of senile epilepsy and of senile insanity, not epileptic, believing that these conditions are largely due to arterial brain changes and are to a considerable extent preventable.

THE EPILEPTOID CONVULSIONS IN ALCOHOLICS AND THEIR RELATION TO GENUINE EPILEPSY.

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The convulsive phenomena in chronic alcoholics were observed by many writers and clinicians; while some of them claimed all epileptic phenomena for the domain of genuine epilepsy others thought those convulsions clinically distinct from those of epileptics.

In our work on alcoholism in its relation to insanity we analyzed also our clinical material and data as collected in the State Hospital in Trenton in regard to convulsive phenomena in alcoholics. There is no doubt of the relationship of alcoholism to various convulsive phenomena in the life of an individual, not mentioning the fact of the toxic influence of alcohol upon the germ-plasma, thus upon the life of the following generation.

We must distinguish the following possibilities of interrelation:

1. Epileptoid convulsions starting in mature life of a chronic alcoholic following an alcoholic excess and occurring only in connection with heavy drinking.

2. Epileptoid convulsions starting in mature life in a chronic alcoholic and persisting during the rest of the life in spite of abstinence from alcohol.

3. Epileptoid convulsion in connection with

the onset or in the course of delirium tremens,

4. Increase of epileptic phenomena regarding frequency, severeness and after effects of convulsions in genuine epilepsy.

5. Delirium tremens or another acute psychosis as a complication of epileptic mental disturbance.

While there is no problem in considering epileptics with chronic alcoholism, epileptic convulsions, especially when they only appear in connection with alcoholic debauches, are somewhat doubtful in regard to their clinical classification. We cannot content ourselves with a hypothetical explanation of a larvant epilepsy, but we must consider each case individually and make our diagnosis respectively. The importance of such a diagnosis is particularly evident when the question of marriage is to be considered in those states in which epilepsy is legally a marital impediment.

Our clinical material of alcoholics in Trenton did not give us very many cases of epileptics. Among about three hundred there were only sixteen in which the epileptic convulsions occurred and which had a start in mature life and had either persisted or were closely connected with alcoholic debauches. In this number the delirium tremens cases with debauches were not included. Six out of fourteen present undoubtedly a ripe development of epilepsy; chronic alcoholism is a complication and exaggeration of the phenomena. Two histories as given will illustrate this group:

1. Young man, aged 28 years, father epileptic and a drinker; two other cases of epilepsy on the paternal side; one epileptic sister. First epileptic convulsion occurring at the age of six of the grand mal type about once in two months; between the ages of 9 and 12 no convulsions; at the age of 12 reappearance of convulsions, grand mal every six to eight weeks, petit mals about two to three in a week. At the age of 16 a glass of whisky taken. It was taken about a week after the last convulsion. In spite of that two weeks later one of the severest attacks since childhood followed by a mental disturbance of three days' duration. At the age of 18 regular alcoholic habits developed; two to three glasses of whiskey taken a day; the habit of intoxication increased with age; parallel to it, increase of epileptic convulsions on an average of one to two in a week of grand mal type, and five to six petit mals a day. At the age of 28 after a severe convulsion development of mental disturbance which combined the depth of impairment of consciousness, characteristic of epileptic psychosis with occupation delirium and typical delirium tremens hallucinations of alcoholism.

Death occurred in the third week of the disease, due to acute nephritis. No autopsy.

2. Man, aged 34 years, colored. Convulsions started in early childhood. His twin brother, another brother and sister all epileptic; mother and maternal grandmother epileptic. Up to the age of 22 convulsions very rare, once in four to six months, light in character—occasionally petit mal convulsions. Alcoholism started at the age of 22; the first two years without deteriorating effect; there was no increase of epileptic manifestations. For last ten years, however, there was a gradual increase of manifestations, and the convulsions averaged five or six a month. At the age of 30, during a post epileptic disturbance, assaulted another colored man and was sent to the penitentiary for four years; after two years was sent to State Hospital on account of violent attacks upon other inmates made after the convulsions. At the present time there is a tendency to a certain decrease in the number of convulsions, his mentality, however, suffered; he is greatly deteriorated.

The next two histories will illustrate another type of combination of epilepsy with alcoholism.

3. Man, aged 46 years, negro; father alcoholic, mother insane; three brothers heavy drinkers; one brother temperate but epileptic. No convulsions ever observed in the patient's life in childhood; development of alcoholism at the age of 24, with a gradual increase to practically a quart a day, several commitments to county jails and workhouses as well as institutions necessary. At the age of 38, in connection with a heavy intoxication, a severe attack described as typically epileptic; from now on frequent attacks of epileptic convulsions of grand mal irrespectively of drinking; even after three months of enforced abstinence convulsions persist; six months after discharge from the hospital died from pneumonia. A strong possibility of syphilis, suggested by Wassermann, which taken twice was, however, not typical.

4. Male, aged 26 years, family history shows only neurotic disposition and alcoholism; parents temperate; mother subject to periodic headaches. Alcoholic habits developed at the age of 22, following an unhappy marriage. Two years after the start of alcoholism first convulsion ever reported in his life occurred. From that time on, grand mal convulsions every four to six weeks; sent to the hospital with a typical case of delirium tremens; hospital residence eight weeks. Curiously enough no convulsions during his hospital stay; they reappeared, however, soon after while patient was still abstinent.

Two following cases will illustrate finally the last group: incidental epilepsy in alcoholics:

5. Female, aged 32 years, married; father heavy drinker; mother a prostitute; whole family mentally and morally low grade. Patient herself of the lowest type, a notorious prostitute, alcoholic debauches since her earliest youth necessitated many commitments to different institutions. Never any convul-

sions in childhood. At the age of 28, after a very severe intoxication a severe convulsion after which she was supposedly three hours unconscious. Another convulsion following intoxication at the age of 30, another at the age of 31 and 32, together four convulsions in four years, all of them in connection with severe intoxication and very grave in character followed by prolonged fainting.

6. (Private case.) Man, aged 29 years, newspaper publisher, comes from a mentally tainted family with many cases of insanity of dementia praecox type; his father mentally normal though somewhat peculiar. Patient himself decidedly of schizophrenic constitution; very heavy whiskey drinker for the last eight years; when intoxicated prone to be violent and abusive. In the last year in the interval of three months four convulsions, all of which followed severe intoxication, and which were very grave, and superseded by an hour or so loss of consciousness. Since that time practically a year abstinence and there is no return of convulsive phenomena.

The first two cases are very clear. They are typical for epileptics who through indulgence in alcohol aggravated their condition. For our purpose they are of no interest, and only teach us what we knew long ago that alcohol should be kept away entirely from epileptics.

The diagnosis of epilepsy with alcoholism (the accent on epilepsy) is easily made from the history of convulsions starting prior to alcoholism and from the family history showing epilepsy in the family.

The question of relation in the second group where epilepsy started in mature life persisting in spite of abstinence is more complicated and difficult. Analyzing practically four hundred cases of epileptics in State Village Skillman, we found that 96 per cent. of onset falls before the age of 20, and in the cases in which epilepsy appeared in later life either arteriosclerosis or syphilis was at the bottom, and we excluded them from consideration of genuine epilepsy. Among 16 cases in Trenton four were of the latter kind, which is rather a large per cent. With the exception of one case, quoted above, all started in the fifth decade of life. In one syphilis was undoubted, in another probable; all of them showed diffuse arteriosclerosis and high blood pressure. Epilepsy was not found in antecedents and only the negro had an epileptic brother.

Considering the age and possibility of syphilis we must say that alcohol is the main factor in producing alcoholic phenomena, but the fixation of this phenomena is taken up either by arter-

iosclerosis or by syphilis. The case of a young man is somewhat doubtful. It is possible that after all we deal here with a case of larvant epilepsy which would not come to the surface if not helped by alcohol. Although there is no history of epilepsy in the family the periodicity of headaches in his mother, particularly as they were described to cause fainting spells are suspicious of mild epilepsy.

In the last group the alcohol causes epileptoid convulsions only in connection with severe intoxication. Here the effect is typically toxic; in all cases the convulsions are described as being particularly severe and followed by prolonged loss of consciousness. Epilepsy was not found in any case in the family. We, therefore, claim that those convulsions have no relationship with idiopathic epilepsy any more than have uremic convulsions or convulsions due to strychnine.

We may as well dispose of the problem of epileptic predisposition. The question arises why in the large number of alcoholics only a few show epileptic phenonema. Although the presumption of a spasmophilic predisposition is tempting, neither the life of the patient nor the hereditary history give us any clues to establishing of such a predisposition. The "why" of convulsions in those patients must be left unanswered and it is probably a matter of chance, as much as a certain complication in typhoid fever, for instance, occurs in certain patients and does not in another.

To the same group belong the convulsions which appear in connection with the onset or during delirium tremens. Clinical observation and anamnesis show that there are seldom more than two during the course of delirium tremens and they are also characterized by severity, elongation, and loss of consciousness after the convulsion. In eighteen per cent of our patients suffering from delirium tremens we found that complication, and as all of them recovered it does not seem that convulsions as such make the prognosis quo ad vitam doubtful. On the other hand, if convulsions do occur in the course of the life of an alcoholic, outside of delirium tremens, they constitute a fair warning that the indulgence of alcohol has reached the allowed limit, and that from now on total abstinence is imperative.

To summarize the brief outlines we can say as follows:

1. Alcohol increases all phenonema of epilepsy in cases of idiopathic disease, and that there is a tendency of complication of certain alcoholic characteristic mental abnormalities with other epileptic mental disturbances.

2. If epileptic phenonema occur in alcoholics in mature life and persist, they do so beyond the age of forty and are due probably to arteriosclerosis or to syphilis.

3. If fixation of epilepsy occurs in a younger age the probability of larvant epilepsy is quite eminent.

4. Epileptoid convulsions occurring in mature life only in connection with alcoholic debauches are purely toxic in character, acute in effect, and have no relation to idiopathic epilepsy.

5. The family history is a good guide in differentiation because as all cases of epileptics with alcoholism whose family history was traced showed one or more cases of epilepsy in antecedents, two other groups did not have any cases of epilepsy with the exception of a young man (case No. 4), whose mother was suspicious of epilepsy, and who probably himself was a case of genuine epilepsy.

6. Epileptic convulsions in the course of delirium tremens are not infrequent but apparently do not need to be considered as a grave complication.

DISCUSSION.

Dr. Holmes: The common opinion is that epilepsy is a hereditary, transmissible disease. There are certainly some forms of epilepsy that are not hereditary and that are not transmissible any more than an amputated leg, and it is further a fact that nobody knows whether epilepsy is hereditary or transmissible or not. The necessary investigation of the pathology of the condition has not been made and the point which I wish to make is this, that before we go on with the segregation of the epileptics, before we sterilize the males and segregate the females, it would be wise for a community with the resources of this community to make research into the causes of these epileptics with at least 10 per cent of what we propose to spend in segregation. This is what I insist upon in regard to the insane, in regard to the feeble-minded and, most of all, in regard to the epileptics.

If you have read that little article of Wellesley relatively to ancestors, you can see how absolutely absurd is this whole proposition of our ancestry. He shows that we have all got the same ancestors, and if this epileptic should be sterilized on account of his ancestry, we may have within us the same elements since we have the same ancestors and we ought to be

sterilized too. The thing which we want to insist on is this: No matter how interesting it is to the officers of the state who are getting salaries for the custody of these people and for the administration of estate and who are getting the graft, to us, the subject is one of pathology and of possible treatment and we ought not to allow our institutions to go on spending millions of money every year and spending it in the most absurd way.

Dr. Solomon: We ought to understand that epilepsy is a symptom and not a disease; just as headache is a symptom. It is simply a type of reaction dependent upon a biological reaction of the individual. We have not headache but headaches. In the same way, we have not one epilepsy but we have epilepsies. The epilepsies may be divided into two particular classes. The first is symptomatic, in which the epilepsy is simply a type of reaction, an expression of some factor which we are aware is in the central nervous system. The genuine type is simply that type of epileptic reaction. It has been falsely referred to as the idiopathic type. We ought to say genuine epilepsy is epilepsy of unknown origin. All the investigation along this line, therefore, ought to be to find the cause of the type which is referred to as original or of unknown origin. In our endeavors to get to the root of epilepsy we must look at it from the clinical, then from the anatomical, then from the pathological and finally the etiological standpoint. True, in families in which the nervous system is unstable the epileptic type of reaction is more apt to occur than in other individuals; but the epileptic reaction may occur in any body, especially as I say, the nervous defective, the nervous unstable and the genuine type of epilepsy is no doubt due to the same disorder, the same irritant to the nervous system.

Dr. Lindsay, Independence, Ia.: I think that some of the states have adopted the proper procedure to deal with this class of unfortunates. They are gradually awakening to the fact that these cases must be segregated and that they must be brought together by themselves. There are many who are free, who do not have the mental symptoms. We cannot reach those at this time but we hope to have methods in the future by which we can study their cases. The point which I wish to bring forth in particular is this: That these cases cannot be studied unless they are brought into an epileptic colony. I wish to say that we are studying these cases all the time in the asylum. We are studying them and we ultimately hope to find out just what the causative factor is, but as nearly as I am able to judge at present, we are doing all we can by segregating them and keeping them away from people who are not afflicted with this nervous trait.

Dr. O. S. Hubbard: I wish to make just one point. If there is any authority on nervous and mental diseases anywhere who does not credit epilepsy as being due to heredity in a large per cent. of the cases, I do not know that authority. Any of you

who are connected with public institutions and have to interview the families of the epileptic or feeble-minded, know from your own observation that the family is defective; you don't have to get it from your laboratory tests. You only have to meet some of the family. In my mind there is absolutely no question about the importance of heredity. I believe that at least 50 per cent. of the epileptics are due to heredity.

PUBLIC AND PRIVATE CARE OF EPILEPTICS IN THE UNITED STATES AND CANADA.

MR. WILLIAM C. GRAVES,

Ex-President of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics.

CHICAGO, ILL.

Epilepsy is a common disease. It is as old as written history. Its victims have suffered for ages. In dark and ignorant periods of the world even death has been meted out to epileptics, because of a misunderstanding of the nature of their ailment. This disorder is so common that most of you have seen its victims fall rigidly and violently, gradually pass into severe muscular spasms, sleep a little and then arise and walk away. This is a common type among the many types. Those who study epilepsy more closely note the changes before and after seizures—changes in the intellectual and moral nature of the victim, irritability, violence, murderous violence, untidiness, and gradual mental deterioration as the disease progresses into the shadows of the demented state.

The epileptic is dangerous to himself and to others. Often he commits most horrible and brutal crimes apparently without motive, without responsibility, and without even knowledge of the revolting acts. The seeming most harmless epileptic may in an instant become dangerous.

To himself, also, the epileptic is a constant menace. The seizure usually occurs without sufficiently definite warning to permit preparation for the attack. The patient falls like a stone, without the least possibility of saving himself, for he is unconscious. Severe wounds, burns and all manner of injuries are the result in and out of public institutions. The confirmed epileptic is apt to bear many scars as the marks of his disease.

Epilepsy also incapacitates its victim for the ordinary occupations of life. He cannot be em-

ployed in positions of responsibility. Everywhere he is barred from employment. The shock of seeing him fall and go into convulsions is too great for the sensibilities of other employes and customers. He is barred also from social intercourse with his equals. He dare not go to public meetings. Each case, no matter how slight its manifestations usually are, is apt to tear off its disguise at any moment with resulting unpleasantness and danger.

Epilepsy Nearly as Widespread as Insanity. The disease is far more general than is supposed. Careful census made in various places show that epilepsy is at least nearly as widespread as insanity. Perhaps it is more common. The average figures run from one epileptic to five hundred of population to one to three hundred. Take the census of the city or county you live in and see what a tremendous amount of suffering this means in your locality.

And the horror of it is that epilepsy is in a large measure a preventable disease. Heredity plays the most important role in its causation, as it does in insanity, yet our laws practically license marriage to anyone of sufficient age. Until this is changed, no great lessening of the number of epileptics can be expected.

There is a great epileptic population now living which must be treated and cared for. Their condition today is far better than a few years ago. Their needs have been studied and are generally being supplied by commonwealths and religious organizations.

Public Care of the Epileptic. The first special public institution for epileptics was established so recently as 1867 at Bielefeld in Western Germany. This was called the Bethel Colony. In 1886 a colony was founded in England by private philanthropy. In 1892 Ohio opened its institution at Gallipolis. From these beginnings the movement has grown splendidly. In Germany there are fifty institutions having a special provision for epileptics. Switzerland has three, Holland two, Belgium also makes provision for epileptics. England now has nine institutions of which four or five are of some size. Australia has an institution. In this brief summary reference is made to sane epileptics. Everywhere, as in Illinois, insane epileptics are provided for as insane persons and only too often the real in-

justice of sane epileptics confined with insane persons is met.

Following the lead of Ohio, which in its institution cares for both sane and insane epileptics, New York was the second American state to found an epileptic colony. This was at Sonoma, in 1894. This institution is for sane epileptics. Massachusetts, New Jersey, Kansas, Missouri, Texas, Indiana, Pennsylvania, Virginia, Connecticut, Illinois, Iowa, Michigan and Wisconsin have been added to the list of states making special provision for epileptics. Except for Indiana, which has a colony in operation, the states in our locality, viz: Illinois, Iowa, Michigan and Wisconsin, have just swung into line and are in the early reaches of progress toward a definite result.

In the province of Ontario, Canada, there is an epileptic colony.

There are two private institutions in the United States, one the Emmaus Asylum in Missouri and the other the Passavant in Pennsylvania.

Massed Information About North American Institutions. During the present year I asked ten pertinent* questions of superintendents of the fourteen public and private places on the North American Continent that have institutions in operation and out of the replies, omitting as far as possible the details, it appears that the total population on May 1, 1914, was about 7,000 patients. These institutions own about 9,500 acres of land of which about 3,900 acres are under cultivation; and the value of the land is about \$810,000. These institutions have 390 buildings valued at \$4,800,000, with equipment, fixtures, furniture, furnishings, etc., of a value of about \$900,000, making a total property value of about \$6,500,000. The per capita cost and analysis of what items go to make up that figure proved an interesting subject. The lowest per capita was \$62.91 at the Hospital for Epileptics, Woodstock, Ontario, and the highest per capita cost was \$248.20 at the Passavant Memorial Homes for the Care of Epileptics at Rochester, Pa.

During the last two years the number of new institutions authorized was four, increase of 36 per cent which is encouraging.

Indiana, Virginia, Texas, Connecticut and On-

*The questions and briefs of the answers appear in a table accompanying this paper.

tario were reported as having laws that give institutions the power of custodial detention over patients. New York, Massachusetts, Ohio and Kansas have that power over insane, or dangerous, epileptics, New Jersey reported broader powers. Pennsylvania and Missouri answered the question in the negative.

Conservatively estimating that there is one epileptic to each 400 of the population of the United States and Canada, there are 250,000 so afflicted among our 100,000,000 souls, and suppose that one-half of these, or 125,000, need care in special colonies, then indeed the fact that we are so caring for only 7,000 shows the great need of a campaign to create epileptic colonies.

The reasons which are given in the foregoing are sufficient to prove that the epileptic is best off removed from ordinary society. It is a strange yet fortunate thing that epileptics are remarkably sympathetic to the needs of each other and the devotion with which one epileptic will watch another through a seizure, safeguarding him so far as possible, is often beautiful to see. This is another of the many reasons which make it desirable that epileptics live together.

Causes of the Disease. Medical science has as yet failed to discover the cause of the disease, probably because each case is a problem in itself. Cures are not numerous. Segregating epileptics in special institutions has contributed much to our knowledge of the disease and has advanced especially our knowledge of the symptomatology and treatment of the condition.

Where a few years ago, the epileptic was stupefied with sedatives and made to live a living death, now, under colony regime, sedatives are used as little as possible and an effort is made to find the best treatment for each case. Strangely enough, the same agents which are so beneficial in combating tuberculosis are of the greatest benefit in these cases. Work in the fresh air and good, wholesome and carefully chosen food are better than medicine. Colonics with their large farms provide these to advantage and are thoroughly proven to offer the most satisfactory method of treating and caring for individuals suffering from this disease.

Segregation in special institutions has another great advantage. It prevents the propagation of the disease by the marriage and internarrriage of

epileptics. The great advantages of this are lessened in some states by the fact that the colonists are voluntary inmates of the colony and cannot be held against their will except in cases where their condition is immediately dangerous to themselves or to others.

Economic Side of the Question. The economic side of the question is also of importance. The epileptic is not generally capable of self-support and is often a charge on his family. In an institution, where there are many like him, special provision can be made to utilize his work to the fullest extent. This, of course, should be the case with every public charge. Each should return to the state for his treatment and care as great an equivalent in work as is possible. Because of this work the public cost of maintaining the epileptic is less than the cost of maintaining the insane.

The general statements made in this address are based on a mass of facts and figures too voluminous to present in so brief a paper, but I reiterate that the public care of epileptics in colonies is shown by experience to be in every way best for their interests and for the interests of the general public.

National Association's Splendid Work. The National Association for the Study of Epilepsy and the Care and Treatment of Epileptics, aside from scientific work in the form of such research as scanty funds would permit, has carried on campaigns for the establishment of epileptic colonies. That there are eleven public colonies in the United States today, and four new ones authorized, bears witness of the intelligent zeal of the men in this organization and of the soundness of their arguments. At the 1914 meeting of the Association, held in Baltimore in May, it was decided to carry on vigorous campaigns in the thirty-eight states not having colonies in the hope that soon the unfortunate, primitive, shocking manner in which most epileptics who are public charges are cared for will give way to the best known form of care—the colony. I am sure the Association will welcome the co-operation which your honorable body purposes to give along generally similar lines of activity.

Massed Information About Public and Private Colonies and Institutions for Epileptics in the United States and Canada

Questions •

INSTITUTION AND SUPERINTENDENT.

1. Does the law in your state give your institutions the power of custodial detention over patients?
2. Briefly, what is the line of effort for the education of your patients?
3. What was your population by sexes, and total population, May 1, 1914?
4. What was the actual net per capita cost of maintenance for the last fiscal year, and what is included therein?
5. What percentage of patients admitted were discharged as cured during the last year, and for what period were these patients free from seizures preceding discharge?
6. What percentage of patients admitted were discharged as improved during the last year?
7. How many acres do you own, how many are under cultivation, and what is the estimated value of your land?
8. How many buildings have you and what is their estimated value and the estimated total value of their equipment, furniture and furnishings?
9. What were your total receipts and disbursements for the last fiscal year, showing: (a) Total maintenance; (b) total all other purposes?
10. Any remarks about notable developments or happenings during the last two years?

Answers

THE OHIO HOSPITAL FOR EPILEPTICS, GALIPOLIS, OHIO.

G. G. KINEON, M. D.

1. The law in the state of Ohio gives the institution the custodial detention over patients, provided they are considered dangerous, or if they are convicted of a criminal offense.
2. The children, both boys and girls, are given elementary school work and are also instructed in chair caning, basket weaving, plain and fancy sewing, housekeeping, cooking, laundry work, gardening, etc., the general idea being to teach them something which will be useful to themselves and families in case they return to their homes. The older patients, both men and women, are given instructions in the various departments of the institution, the majority of the women doing housework, laundry work, sewing and cooking, while the men work on the farm, in the gardens, lawn and workshops.
3. Population May 1, 1914, 714 females, 815 males; total, 1,529.
4. Per capita cost of maintenance for the past fiscal year: Gross, \$160.07; receipts from outside sources, \$26.33; net per capita cost of maintenance, \$133.74. This includes all personal service, subsistence, clothing and sundries, such as heat, light, power, water, etc.
5. The number of patients discharged as recovered was equal to 1 1-10 per cent of the total number admitted. That means they have gone over two years without having an attack.
6. The total number of patients discharged as improved during the year equal 32 2-10 per cent of the total number admitted during the year.
7. The hospital grounds consist of 548 acres, 125 of which are under cultivation, the rest being in lawns, hills, woods, etc. The estimated value of this land is \$54,800.
8. Fifty-two buildings, exclusive of small buildings and outbuildings. The estimated value is \$712,377. The estimated value of the furniture and furnishings of these buildings is \$33,257.01.
9. Total receipts and disbursements, \$284,773.56; \$234,182.59 being the total maintenance, and \$50,580.97 being the expenditure for all other purposes. The amount received from outside sources, such as the sale of products and from friends for the maintenance of patients, amounted to \$88,524.69.
10. Twenty per cent of the patients admitted during the past two years had been here previously for treatment. Twenty-three per cent of the entire number of patients admitted since the opening of the hospital give a record of having epilepsy or insanity in the family. Of the total number in the hospital at present 11.16 per cent are hemiplegia, 4.64 per cent having left-sided hemiplegia and 6.52 per cent having right-sided hemiplegia.

CRAIG COLONY FOR EPILEPTICS, SONYEA, N. Y.

WM. T. SHANAHAN, M. D.

1. Under a recent law the Colony has the right to detain such patients as are admitted through the court after having been declared mentally incompetent. Applicants who are not incompetent mentally are received as voluntary patients.
2. General scholastic, manual and some physical training in a separate school building under direction of five teachers. Instruction in music is given by a resident band master, there being a patients' band and patients' orchestra.
3. 665 females; 768 males—total 1,433.
4. Net per capita cost for fiscal year ending Sept. 30, 1913, \$169.40; this excluding home product and various receipts turned into the state treasury, including all salaries, wages, traveling expenses of officers and employes on Colony business, household stores, clothing, provisions, fuel, hospital and medical supplies and ordinary repairs.
5. No figure worth anything could be arrived at regarding what percentage of patients admitted during the year were discharged during the year. Of these patients discharged 4 were recovered, having been free from seizures for two years or longer, this number being 1.6 per cent. of the discharges.
6. Thirty-four were discharged as improved, being 14 per cent. of the total number discharged within the year.
7. The Colony owns 1,900 acres, of which 650 are under cultivation. Estimated value of land, \$115,000.
8. The present number of buildings, including farm and all other structures, is 95, their estimated value being approximately \$875,000. Personal property, including furnishings, etc., is approximately \$195,000.
9. Total receipts for the fiscal year for maintenance was \$302,500. Total value of product raised and miscellaneous sales, \$35,802.54. Reimbursements from counties for clothing, \$20,684.87. Reimbursements from relatives for maintenance of patients, \$7,229.29. Miscellaneous sales, other than home products, \$3,322.43. All moneys received for clothing, reimbursements for maintenance, etc., are required by law to be turned back into the state treasury and not retained by the institution.
10. Owing to lack of funds, no material development has been possible during the past two years.

MONSON STATE HOSPITAL, PALMER, MASS.

EVERETT FLOOD, M. D.

1. Yes, if they are committed as insane or dangerous epileptics. Sane admissions are required by law to give three months' notice in writing of their intention to leave the hospital. The attorney general has, however, ruled this law unconstitutional.
2. We have schools for the children and industrial instruction for all patients.
3. 469 females; 482 males—total 951.
4. \$251.53. This is the actual cost of maintenance.
5. One patient was discharged during the year as having the disease arrested. Had been free from seizures for 30 months. This patient was admitted in 1910.
6. 194 were discharged on a visit as improved. Many of these were admitted in previous years.
7. 687 acres; 200 acres under cultivation. Value, \$32,262.
8. Patients' buildings, 18; nurses, 4; farm, stable and grounds, 18; miscellaneous, 9. Value, \$452,471.56; value of equipment, furniture and furnishings, \$226,150.
9. Total receipts, \$16,307.18; total disbursements for maintenance, \$22,991.06; total disbursements for all other purposes, \$14,221.76.

THE NEW JERSEY STATE VILLAGE FOR EPILEPTICS, SKILLMAN, N. J.

DAVID F. WEEKS, M. D.

1. Under a recent amendment to our law the power to detain our epileptics has been broadened.
2. Our greatest effort is to educate our patients to do something about the institution. We have a complete educational department, starting with sense training, kindergarten, and going through the various grades as far as the 8th grammar grade in regular classes. Patients who can take instructions beyond this point are given individual attention. Our industrial department prepares cases to make our shoes and clothing, repair our furniture and do the many carpentry, masonry, plumbing and steam fitting jobs in the institution.
3. 208 females; 299 males—total 507.
4. The net per capita cost for the fiscal year ending Oct. 13, 1913, based on a daily average attendance of 420.3 patients, was \$300. This per capita was figured from the following expenditures: Administration expenses, table supplies, house supplies, clothing and clothing material, repairs, farm,

stable and grounds, heat, light, power and miscellaneous expenses.

5. No patients were discharged cured. Practically all who enter show improvement. Several patients up to this time have been free from seizures the following periods: 2 years, 19; 1 year, 4; 9 months, 2; 6 months, 3; 4 months, 11; 2 months, 9; 1 month, 17.

6. Ninety per cent of the patients discharged were improved. The other 10 per cent would have been had they not been removed before they became institutionalized.

7. The acreage of the village is 1,005, valued at \$50,779; 600 acres of this land are under cultivation.

8. Forty buildings, valued at \$661,988.40; furniture and fixtures are valued at \$48,300.12.

9. Total receipts from private patients, county patients, sales of farm products, miscellaneous sales, and interest on trust funds amount to \$55,495.02. Received from state treasurer, \$162,140.72. Total expenditure for maintenance, including salaries and wages, \$156,094.85. Amount expended for betterments or for items purchased during the year and classed in the permanent assets, \$162,094.85. For repairs and improvements to buildings, \$6,045.87. Total expenditure, \$162,140.72. Receipts for improvements and addition to the permanent assets, \$92,482.12. Total expenditures for addition to water system, roads, land, furniture, trees and shrubbery and buildings, \$92,482.12.

10. The opening of three cottages and a 35-bed hospital; the extension of the water and sewer system; addition to the dairy barn; acquisition of additional farm with its farm buildings; two cottages for employees, which are about ready for acceptance, and a custodian building for the accommodation of 100 patients which is under way, are notable features of development. The appropriations for developments for the past two years are the largest made to any institution in the state. The growth of the field work, the data gathered in the study of the inheritance of epilepsy, with introduction of sense training, being a modification of Fernald, etc., methods, have advanced the work of the institution.

HOSPITAL FOR EPILEPTICS, PARSONS, KAN.

M. L. PERRY, M. D.

1. Insane epileptics are committed to the hospital by the probate court, a similar form of commitment being used as in the ordinary insane. Sane epileptics are admitted on voluntary commitment, the application being signed by the patient if of legal age or by the parent or guardian if the applicant is a minor. Voluntary patients cannot be held permanently against their will, but under a special act of the legislature the superintendent is given authority to detain forcibly, if necessary, such patients for a period of ten days after written notice is given that the patient desires to be released. I had this act passed so that we would have temporary legal control over voluntary patients for a period long enough to communicate with their relatives in the event the patient became dissatisfied and wanted to leave, so that arrangements could be made for his safe removal.

2. We have for several years conducted a school in connection with the hospital. Our school term is eight months in duration. We have not been able to secure the necessary appropriation to give us adequate school room facilities or equipment, but do a certain amount of ordinary grade work and quite a little sewing, fancy work, lace making, basketry, and elementary woodwork.

3. Our population May 1, 1914, was 322 males and 204 females, a total of 526. Of this number 24 were away from the hospital on that date on parole.

4. The actual net per capita cost of maintenance for the fiscal year ending June 30, 1913, which is the last period on which I have definite figures, was \$193.74. Our per capita cost is reckoned as follows: The sum of the total expenditures for maintenance, ordinary repairs, salaries and wages, less the fees collected and remitted to the state treasurer, is divided by the daily average of the number of patients actually in the institution for the year.

5. During the fiscal year ending June 30, 1913, no patient was discharged as cured. We discharge on an average of about one patient per year whom we consider as cured. We discharge no patient as cured who has not gone at least two years free from seizures and other evidences of epilepsy. Not all our patients who go this long free from seizure are discharged as cured, as we have quite a number who have gone for a much longer period free from the ordinary epileptic attacks, but who show other evidences of the disease and whom we feel convinced are not cured but would have recurrences of their seizures if they were discharged.

6. Fifteen per cent.

7. The institution owns 640 acres of land, about half of which is under cultivation. The land has an approximate value of about \$150,000.

8. We have 22 buildings in connection with the hospital, their value being about \$500,000. Our equipment has a value of approximately \$100,000.

9. For the fiscal year our receipts were: (a) for maintenance, including ordinary repairs and salaries and wages, \$92,500. Disbursements, \$91,321. (b) all other purposes, receipts, \$28,151.37. Disbursements, \$22,186.42.

10. There have been a number of improvements in the last two years, including a very satisfactory cottage for boys and

younger male patients; a cottage for custodial men of the better class; a large cold storage and ice making plant and considerable improvement of ground, landscape, gardening, etc.

STATE EPILEPTIC COLONY, ABILENE, TEXAS.

T. B. BASS, M. D.

1. Yes.

2. None, except as to work.

3. 200 females; 225 males—total 425. These are in the institution; some 75 are out on furlough.

4. \$167.79. All expenses, clothing, fuel, medicine, and employees' wages and salaries.

5. None.

6. About 17½ per cent.

7. 643 acres; 350 acres under cultivation. Value, \$32,150.

8. Seventeen buildings, including barn. Total value, \$320,000.

9. Amount appropriated by legislature for maintenance and all other expenses, \$78,700. Received from sale of cows, farm products, etc., \$2,737.28, which amount was turned into the state treasury and was not used by the Colony.

10. Have been treating all patients with rattlesnake venom since July, 1913, but have been very much disappointed in its results.

INDIANA VILLAGE FOR EPILEPTICS, NEW CASTLE, INDIANA.

W. C. VAN NUYS, M. D.

1. I quote from our organic law: "All persons admitted to the institution shall, until properly discharged from said institution, be under the custody and control of the superintendent; and the superintendent may, subject to such regulations as the trustees see fit to adopt, restrain and discipline any patient in such manner as he may judge is demanded for the welfare of the patient and the proper conduct of the institution."

"No person shall be discharged from the said Village for Epileptics until, in the judgment of the superintendent, the mental and physical condition of the patient justifies it."

2. Until last year, we have had no children of school age. A few are now being admitted and we are remodeling an old building on the premises and expect to have school for the children next winter.

3. 225 males; no females.

4. Actual per capita cost of maintenance for the last fiscal year, \$251.50. This includes all maintenance, clothing, ordinary repairs and minor improvements, less earnings paid into the state treasury.

5. None.

6. None.

7. 1,245 acres; 700 acres under cultivation. Estimated value of land, \$150 per acre.

8. There are 56 buildings, valued at \$216,670.85; furnishings and equipment valued at \$28,041.54. This number includes all barns, residences for employees, implement sheds, etc. We have 10 buildings for patients valued at \$152,684.32; furnishings of these buildings valued at \$9,435.73.

9. Total receipts, \$89,000.74; maintenance, \$55,547.20; all other purposes, \$33,453.54; disbursements, \$89,000.74.

10. The last two years have been fairly prosperous with us. We received bids recently for the construction of six new buildings. One will be an isolated frame cottage for 27 epileptic teamsters, and furnished will cost approximately \$15,000. The other five buildings, consisting of one main building, one boiler house and three cottages for 25 patients each, will be the first buildings erected in our group for boys. Three additional cottages of the same size will probably be erected in the future. In addition there will, in time, be an amusement hall, industrial building, school house, green houses and a dairy barn in connection with this group, which group will be one of six distinct groups.

VIRGINIA STATE EPILEPTIC COLONY, MADISON HEIGHTS, VA.

A. S. PRIDDY, M. D.

1. Yes.

2. Will open a school this fall for youthful epileptics of a mentality which promises any results from educational efforts.

3. 271 epileptics; 160 males, 111 females.

4. For fiscal year ending Sept. 30, 1913, based on an average population of 135, per capita cost was \$206.28, including all expenses of operating the institution, insurance and repairs.

5. Total discharges for last fiscal year, 14; apportioned as follows: Insane, 5; improved, 7; unimproved, 2. The discharges of those improved were not based on cessation of seizures but on lessening the frequency, general improvement in health, and conditions at their homes, which made their discharge consistent.

6. 14 per cent. approximately.

7. 1,000 acres; 200 under cultivation. Value, exclusive of buildings, \$50,000.

8. Ten buildings. Value, \$100,000; furniture and fixtures, \$10,000; equipment, \$61,000; total value of plant, \$221,000.

9. Receipts and disbursements for year 1913 were \$79,.

703.81. (a) For maintenance, \$27,923.37; (b) For all other purposes, \$51,780.44.

10. During the year a three-story brick building was erected to accommodate 115 epileptic women, with kitchen, dining rooms, attendants' quarters and dining rooms furnished complete at a cost of \$35,000. Farm, live stock and other property have been greatly improved in value. The death rate was lower for last fiscal year than that of any epileptic institution in this country. An amusement hall, chapel and school rooms are now being built.

THE PENNSYLVANIA EPILEPTIC HOSPITAL AND COLONY FARM, OAKBOURNE, CHESTER CO., PA.

J. CLIFFORD SCOTT, M. D.

1. The law of Pennsylvania does not give us custodial detention over patients.

2. Children under 18 years attend school and branches taught to 8th grade; also manual training—raffia, reed work, stenciling, etc., as well as agriculture and horticulture.

3. Population May 1, 1914: 48 females, 28 males—total 76.

4. The actual net per capita cost—69 cents. This is net cost, including all expenses based on Fidelity Trust Co. annual statement. Our per capita cost has been for several years lowest of all institutions applying for aid from state.

5. None discharged cured for year ending May 1, 1914. One patient discharged May 6, 1914, cured, having had no attacks for two years.

6. None.

7. We own 142 acres; 125 acres are under cultivation. The estimated value is \$28,000.

8. Ten buildings in all, including farm house and barn. There are 3 cottages for patients.

9. Total receipts and disbursements on account of maintenance for 17 months, from Jan. 1, 1912, to May 31, 1913, \$29,386.05; for 12 months, \$20,743.08.

10. New buildings have just been completed, viz.: Central kitchen, assembly building for church, school and entertainment purposes; a \$12,000 addition to old industrial building combining with latter to make cottage for women. Girls' cottage destroyed by fire Nov. 19, 1912, about to be rebuilt.

THE CONNECTICUT COLONY FOR EPILEPTICS, MANSFIELD DEPOT, CONN.

DONALD M. ROSS, M. D.

1. Yes. All must be regularly committed.

7. 500 acres; 100 acres under cultivation. Land cost, \$25,000.

8. Two buildings only for patients. Cost of furnishings not yet fully estimated.

HOSPITAL FOR EPILEPTICS, WOODSTOCK, ONT., CANADA.

J. J. WILLIAMS, M. D.

1. Yes.

2. None.

3. 105 females; 106 males—total 211.

4. 62.91 gross; salary, maintenance, etc.

5. Two years, 4 per cent.

6. Ten per cent.

7. 320 acres; 250 under cultivation. Value of land, \$40,000.

8. Eight buildings; value, \$225,000; total value of equipment, etc., \$100,000.

9. Receipts, \$16,587.56; maintenance disbursements, \$53,587.18, all purposes.

10. Added 117 acres, put up two buildings and grounds improved.

THE PASSAVANT MEMORIAL HOME FOR THE CARE OF EPILEPTICS, ROCHESTER, PA.

REV. F. W. KOHLER, Director.

1. No law that I can learn of.

2. We have not been able to pursue any line of effort for the education of patients. Seizures too frequent.

3. 47 females; 24 males—total 71.

4. Per capita cost for last fiscal year, \$248.20. This includes everything except clothing in about 40 cases.

5. None.

6. None.

7. We rent 54 acres; nearly 30 are cultivated, the rest pasture and lawn.

8. Five buildings; 3 are comparatively new, value, \$60,000; 2 old buildings, \$8,000; total, \$68,000; also barn, pumphouse and reservoir.

9. Receipts, \$22,908.45; expense, \$23,140.29; deficit, \$231.84; maintenance, \$12,767.09; balance, \$10,141.36, new buildings and furnishings.

10. Built and occupied the new cottage for men.

EMMAUS ASYLUMS FOR EPILEPTICS AND FEEBLE-MINDED, MARTHASVILLE, MO.

REV. C. F. STURM.

2. With the exception of four, we have only adults, giving them a home for lifetime, if they like to stay. One of the four children we send to public school. The three others could not be educated, two of them can not even talk. We have relig-

ious services every morning and evening and, in addition to them, on Sunday regular church services, besides Sunday school.

3. 32 females; 45 males—total 77. This includes 36 epileptics and 41 feeble-minded.

4. \$118.53, everything included.

5. None.

6. None.

7. 450 acres, mostly wooded hills; about 85 under cultivation. Value, probably \$6,000.

8. Ten buildings; value, \$38,000 to \$40,000; equipment, \$2,000.

9. Pension fees, \$7,569.82; other receipts, \$2,295.65; total, \$9,865.47. Total maintenance, \$9,859.93.

10. One of our epileptic patients had no seizure since Oct., 1912. Another had only one seizure since Sept., 1912.

MISSOURI COLONY FOR THE FEEBLE-MINDED AND EPILEPTIC, MARSHALL, MO.

R. P. C. WILSON, M. D.

1. No.

2. Grade work up to the 4th grade; some manual training.

3. 266 females; 205 males—total 471.

4. Approximately \$15.00 per month. This includes everything that is necessary.

5. None.

6. None.

7. We have 290 acres; 90 acres under cultivation. Estimated value about \$125 per acre.

8. Fourteen buildings; total estimated value of properties belonging to the Colony, \$500,000 approximately.

9. From private patients, \$5,712.67; from other sources, \$830.37. The state legislature, in 1913, appropriated \$150,000 for the support of patients, this amount being for two years, 1913 and 1914.

10. During the incumbency of the present superintendent, viz.: two months, the treatment administered has reduced the epileptic seizures about 50 per cent.

MEMORANDUM AND TOTALS.

MEMO.—New institutions authorized in Illinois, Iowa, Michigan and Wisconsin.

Total population May 1, 1914, 6,773; females, 3,069; males, 3,704.

Acres owned, 9,370; under cultivation, 3,795; value of land, \$806,991.

No. of buildings, 390; estimated value of buildings, \$4,669,507.81; value of equipment, furniture, etc., \$803,748.67. Total value of land, buildings, equipment, furnishings, etc., \$6,280,247.48. Two institutions did not report value of buildings; five institutions did not report value of equipment, furnishings, etc.

SOCIAL ASPECTS OF EPILEPSY.

MR. MAURICE D. LYNCH,

CHICAGO, ILL.

It would be too much to hope that in a paper by a layman on "Social Aspects of Epilepsy" any strictly new thoughts upon the subject could be presented, or that attention could be called to any phases of the problem with which you are not already familiar. In fact, the handicaps of the epileptic are so well known to all who have given the matter any thought, it might well seem that nothing was left to be said. However, one who is interested in social work so frequently comes into contact with the problem of the epileptic, and so often is made to realize the hopelessness of successfully dealing with cases of this malady, especially in states where there are no colonies for the care of the epileptic, that he feels impelled, whenever opportunity offers, to reiterate the need of proper provision for these unfortunates.

If what follows should give a new turn of thought to those legislators in the various states who must eventually deal with the problem of the epileptic, or should influence them, in any degree, to lend earnest efforts to provide for the proper care of those afflicted, the only object of this paper will have been attained.

Thanks are due, and are here tendered, to those ladies and gentlemen connected with various charity and other organizations in fifty cities of the United States, whose courtesy in furnishing data has helped so much.

In ordinary cases of distress, the social worker finds the existing machinery of his organization sufficient to cope with practically every situation that arises. In these days of day nurseries, outing camps, tuberculosis sanatoriums, visiting nurses and all the other agencies that co-operate with organized charity, about all that is left to worry over is money to keep the machinery going. When epilepsy is encountered, however, the social worker finds himself blocked. Where no colonies exist, nothing adequate can be done for the unfortunates. Most states provide only for epileptics who may be committed as insane, or who may be sent to institutions for the feeble-minded. Sometimes different counties send epileptics to the county poor-houses, but the patient who suffers from periodical spasms and who at other times is apparently normal, is without any hope whatever for humane and effective care.

The victim of epilepsy may be quite strong and healthy, willing and anxious to work and provide for himself and family but once he is known to be an epileptic, every avenue to employment is closed against him. Nor can you blame employers for not wishing to hire him. The epileptic employed in a place where there is machinery is a menace to his fellow-workman as well as being liable to injury himself. If he personally handles machinery, the danger is greatly increased. If the epileptic is a clerk in an office, he upsets the whole routine of the place when he has an attack and makes his retention in position impossible. The writer remembers well the case of a girl epileptic, who had a violent seizure in a large office where there were some two hundred other young women employed. Such nervous terror was shown by so many of the other girls, it is safe to say that no known epileptic ever will be employed by that particular firm. And you cannot blame

the firm for wishing to spare its employes from witnessing such distressing sights.

We are told that in something like eighty per cent of all cases, epilepsy manifests itself before the age of twenty years. The poor epileptic, therefore, seldom is able to learn a trade or any special occupation, with the result he is not able to hold steady employment and thus provide for himself like other men. He usually is the most inefficient of unskilled laborers. If the disease comes upon him in later life he has to give up his trade, if he has one, because he cannot work steadily at anything and he thus becomes an unskilled laborer. The smaller wage in such cases necessarily reduces the standard of living and usually drives the wife and young children to work, to the detriment of their health and education. Also, epilepsy, by weakening the control of the individual, is very apt to become a moral handicap, leading to intemperance and vice.

Scores of cases, showing the handicaps of the epileptic in the matter of getting employment, might be cited, but one from Tennessee is all that will be quoted:

The Barker Case. The man in question came to the Associated Charities seeking help to get a newspaper route in the suburbs. He could not hold employment in inside positions but believed that outside work would be possible for him and he had a friend who would loan him a horse and buggy to make the daily trip. The route was accordingly secured for him but a few weeks afterward he fell out of the buggy during a seizure. He hurt himself and was sent to a hospital for two months. Upon being discharged from the hospital he resumed his route, this time with a boy to accompany him, but on account of frequent seizures he was unable to continue. For a year afterwards one outside job after another was found for him but he was able to hold each one only a short time. At the end of the year he had a stroke of paralysis and, as his mind was becoming affected, he was placed in the insane ward of the County Hospital. He still is there, hopelessly insane. The report concludes with the statement that if there had been a colony for epileptics in the State, so that the man could have been placed therein at an early stage of his affliction, his case would have been in all probability materially helped.

The epileptic, in addition to the handicaps he labors under in the matter of getting and keeping employment, is deprived to a great extent of the pleasure of association with his fellow men. His malady usually keeps him from attending services in whatever church he may belong to. He does not feel that he should go to public entertain-

ments. He cannot, with any satisfaction, share in the sports and diversions of his fellows. If he is intelligent, he often is deeply humiliated because of the aversion in which those so afflicted are held, and because of the fallacy held by many otherwise intelligent people regarding epilepsy as a contagious disorder. It might be well to mention here that sudden death in an epileptic is common and the cause may not be recognized, and circumstantial evidence associated with the death many involve other persons in serious difficulty.

But it must not be supposed that it is only the victim of epilepsy, himself, who suffers. While his own plight is pitiful enough, the case of his wife and children is no better. As a matter of fact, the presence of an epileptic in any family, even in families where the question of want does not enter, is demoralizing in the extreme. The nervousness of the patient, the ever-present fear of the rest of the family of the expected recurrence of the spasms, leads to high nervous tension in all. This is particularly true if the husband and father is the afflicted one. The attacks of the patient make the home an unpleasant place for the children; they do not care to have their friends visit their home, so they begin going away from it for their pleasures. Many children thus learn to live away from home, losing parental restraint and the feeling of filial responsibility. The epileptic in a family, especially where the condition is marked, requires so much attention that one or more normal members of the family are prevented from assuming their proper part in community life, thus entailing material loss to the state.

The presence of an epileptic also decreases the earning power and thus lowers the standard of living of the family. Frequently, where the husband is the afflicted one and the wife is a healthy and capable woman, the latter could easily find employment and support herself and children if she did not have on her hands the care of her husband. If there were institutions in every state to which the epileptic could be committed, the position of the family would be immeasurably better, because the normal members of it could find employment and would enjoy peace of mind. Peace of mind is impossible in a family that numbers an epileptic among its members. A few cases will be quoted, which illustrate the effect of the epileptic husband on the rest of the family:

The Green Family. This family consists of a father, mother and three children, a boy of thirteen, a girl of nine and a boy of eight. The father, a man of forty-eight years, worked as a steamfitter, earning \$18.00 a week, until he was suddenly taken with epileptic attacks. Since March, 1909, he has been unable to secure employment. For a year after his illness, the wife endeavored to support the family, working as a charwoman in an office building. The nervous strain of her husband's attacks finally broke her health, and the physicians said that if she did not have complete rest, she would lose her mind. Incidentally, \$1,442.70 has been expended upon this family during the period they have been pensioned up to February, 1914.

The Brown Family. Consists of a father, mother and one child, a girl of nineteen. The father, who is sixty years of age, was a brass finisher. For the past six months he has been unable to work. His epilepsy has affected his brain. As he had threatened several times to asphyxiate the whole family, it was found necessary to have him committed to an institution for the insane. It is easy to imagine the mental condition of the other members of this family.

The Johnson Family. In this case the wife became a nervous wreck because of the fear and distress she endured whenever her husband's epilepsy overcame him, which it did several times a year, making him very dangerous, sometimes for weeks at a time. Her health became so bad, she could not withstand an attack of illness that came upon her and she died. Her husband's condition was undoubtedly the indirect cause of her death. The man in this case pleaded pitifully for an opportunity to go to an institution for epileptics and receive proper treatment.

So much for cases where the husband is the afflicted one. Let us now turn to those where the wife is the victim. The malady in the case of the woman usually makes it impossible for her to conduct her household properly. It weakens her will power, causes her often to be inefficient, lazy and careless, and prevents her from making the home attractive to the husband, with the result that epileptic women are very frequently deserted by their husbands. They usually, too, lack proper control over their children. Thus we find many cases of delinquency among the children of epileptic mothers. Let me quote two cases that come from the District of Columbia, which well illustrate this point:

The Smith Family. This family consists of a man, woman and three children. The youngest two are the woman's children and the oldest is the child of the man's first wife. The woman has been ill with epilepsy for at least five years, how much longer we do not know. She has grown steadily worse, and now her mind is affected and her physician says she never can be any better. The oldest child, dissatis-

ried with her home, has lived away from it for some time and has recently become the mother of an illegitimate child. The youngest child frequently has to stay home from school in order to care for her mother, who has violent spasms. The situation is made worse owing to the fact that the man drinks, is immoral and does not support the family. During the past winter, he, too, has been ill. The family has sold almost all its furniture and the home conditions are terrible.

The Robinson Family. This family consists of a widow, with four daughters, aged respectively, twenty-eight, twenty-one, eighteen and four years. The mother is an epileptic and while she has gone to a hospital for treatment, she is gradually growing worse. She can do fair work as a laundress and good work as a cleaner, but rarely can make more than \$1.50 a week, as it is hard for her to secure a place on account of her affliction. Her oldest three daughters are by her first husband, who, she claims, is dead. The fourth is the child of a laborer who died in the Home for the Aged, where he was placed after having a stroke of paralysis. The three grown daughters each are living with men to whom they are not married, and have illegitimate children.

Where children are epileptic, we find the same strain on the parents and other members of the family as in cases of affliction among adults. Epileptic children nearly always have a poor school record and their lives in school are very unhappy on account of other children making fun at their expense. They often grow up without either mental or physical training, and their chances in life are practically nil. Some children may never be left alone, thus preventing the mother, if she is a widow, from doing anything towards the support of the family and automatically forcing them into pauperism. The case that follows illustrates this:

The Kellar Case. In this case we find a boy, twelve years of age, who has frequent epileptic seizures. During one of these, which occurred recently, he was severely burned. The mother was deserted by her husband some time ago and left without means of support. She is a capable woman and under ordinary circumstances would have no difficulty whatever in getting along and making a living for herself and child. She is willing and anxious to work but the boy must always be watched and she is unable to find anyone who will care for him in her absence. The result is she is compelled to accept charity.

It might be well to note that in at least one epileptic colony that I have in mind, no provision is made for the reception of any but able-minded men who are "enrable," so that in that state, although a colony for epileptics exists, it makes no

provision for women and children.

There is another class of epileptic cases to which it may be well to refer. I mean those cases where the question of poverty does not enter but which show the terrible mental anguish of sensitive, educated victims.

The Henderson Case. I have in mind this case of a young man in an Eastern city. He is exceedingly bright; he stands high in a social way and is very successful in business, but has a strain of epilepsy in his blood. His seizures were infrequent, never more than once a year, sometimes not so often as that. His habits were clean, his integrity beyond question and his personality pleasing. He became betrothed to a young woman of high attainments, but did not make his affliction known to her. While he was following an usher in a theatre one evening, the young woman just preceding him, he was taken with a seizure which was the first he had experienced in two years. That marked the close of the relations between himself and his fiancée. Of course, it is well that it did. It illustrates, however, in a striking way, the handicaps of the epileptic in the social relations of life.

The Sanderson Case. Another case, which presents a strong moral lesson, is this one of an intelligent young woman, well educated and ambitious, who held a good position in a manufacturing establishment in Pennsylvania. She had always craved the beautiful things of life and finally met a well-to-do young man who fell in love with her and wanted to marry her. He could have given her all the things for which she longed. She had, however, been subject to epileptic seizures for a number of years and had received treatment from a doctor in her city. When she realized that she wanted to marry, she went to this doctor and asked his advice. The doctor sent her to an alienist in Philadelphia, who examined her carefully and told her he felt she would be doing a great injustice to the man if she married him, as well as to the children who might possibly come from the union. This girl gave up the man and has since lived her life with courage and fine spirit, but it is quite patent that such an attitude could not be expected from people of lesser moral courage and insight into the future.

In the course of social work among families of epileptics, we see so many striking illustrations of the influence of heredity in epilepsy, that surely it requires no expert knowledge of the subject to draw from them the conclusion that the epileptic must not be permitted to propagate his kind if any headway is to be made against the advance of this great scourge. From Pennsylvania comes a case which shows clearly the influence of heredity.

The Walker Case. Here we have a young woman suffering from epilepsy, who has two small children. Her father and grandfather before her were epilep-

tics. Her oldest child, now two years of age, has developed convulsions. The woman herself has the mental development of a girl of thirteen. She is inefficient, indolent and does not know anything about making the home attractive. Her husband has deserted her several times and yet in this case there seems to be nothing to look forward to except continued propagation and years of dependence upon charity.

The Williams Case. Another typical epileptic family is this one from Illinois, where the husband, forty-nine years of age, is epileptic. The wife is sickly and worn out. The oldest child, a daughter of twenty, was in one of our State schools for three years. She has had two illegitimate children. The next child, a boy of eighteen, was at another State institution for several years. He left school at the fourth grade. He works irregularly and is given to drink. The next child, a boy of sixteen, left school at the fourth grade. He refuses to work unless threatened with court action. The fourth child, a girl of thirteen, is still in school in the third grade. The next child, a boy of ten, is in the first grade and is feeble-minded. The two youngest children, boys of seven and three years respectively, are nervous and unmanageable. This family is and always has been dependent on public and private charity, although three of the children have now attained working age.

The White Case. In this family, the husband is forty-two years of age, the wife forty-six years, and there are five children of thirteen, ten, nine, eight and seven years, respectively. The family has been helped by the Associated Charities for ten years. The man is unable to work because of frequent attacks of epilepsy. At one time he was earning \$3.50 a day, but he cannot hold a position any more. The woman is an inefficient home maker and four of the children were committed to the State School for Dependent and Neglected Children. Two of them have infantile paralysis and the youngest child suffers from an incurable skin disease. She also is feeble-minded and extremely nervous. The cost of this family to the community has been very great.

Scores of cases such as these might be cited to show how epileptic parents beget epileptic children. With slight variations, the tale is always the same.

From no matter what angle you view the problem, you are forced to the conclusion that the epileptic at large is a menace to society. Sometimes this truth is brought home in a terribly impressive manner. Only last week we, in Chicago, were shocked by reading accounts of the brutal murder of a four-year-old girl by a known epileptic. In spite of the well known fact that many epileptics just prior to seizures have a strong homicidal mania and that the records are full of deeds of violence committed by epileptics who

really were not to blame for those crimes done while in the grip of their malady, society in general seems to view epilepsy with an indifference that is almost incomprehensible to those who have given the subject even the most casual thought.

Surely, there is only one sane way to meet the situation and that is to enact in all states laws committing epileptics to properly equipped colonies, where they may be intelligently dealt with.

There is little doubt that the question of cost is chiefly responsible for any state being without a properly equipped colony for epileptics. If, tomorrow, colonies could be established without cost, no state in the Union would be without one or more. Now, when we consider that every state, right now, does indirectly pay for the care of every case of epilepsy within its borders and pays at a ruinously expensive rate, is it not disgraceful that epileptics everywhere are not humanely and scientifically cared for?

The answer of the average State Legislature to the plea for colonies and the excuse the average legislator makes to his conscience for failing to urge their establishment, is "we cannot afford it now. We cannot pay out that much money now." But they *do* pay and pay dearly, not only in money but in broken homes and broken hearts and every generation bequeathes to succeeding generations a terrible legacy in the ever increasing number of these unfortunates who must be cared for.

COAGULATION TIME OF THE BLOOD IN EPILEPTICS.

D. A. THOM, M. D.,
Monson State Hospital,
PALMER, MASS.

Observations as to the morphology and toxicity of the blood in epileptics have been numerous and the results of these researches have been fairly constant, though they have borne but little fruit. As to the coagulability of the blood in epileptics the results have been more varied.

Both Dr. John Turner and Dr. William Alden Turner believe that the coagulation time is greater in epileptics, while C. Besta reports a lessened coagulation time in those cases suffering from the disease. These differences in opinion may have resulted from a difference of the technique in determining the coagulation time, or

what is more likely, it is simply that difference that would be apt to occur in so many different individuals.

There is without doubt a wider variation in the coagulation time of the blood, than there is in its morphological characteristics.

That there are under normal conditions between four and five million red blood cells per c.c.m. we are reasonably sure, but it would be with much less certainty that we could state with the same relative leeway for error the coagulation time of the blood.

I believe the normal limits for coagulation time of blood might be fairly set between three and eight minutes, and in my work I have used these figures.

The method used for determining the coagulation time of the blood in the cases I present was the same as described by Roger I. Lee, M. D., and Paul D. White, M. D., of Boston, in the *American Journal of the Medical Sciences*, April, 1913, and is described by the author as follows:

One c.c. of blood is withdrawn from an arm vein, using a small, all-glass syringe (for example, Burroughs and Wellcome, 20 minims), preferably with a platinum needle, the syringe having first been sterilized and rinsed out with normal salt solution. The time at which the blood is withdrawn is noted as accurately as possible; the needle is removed and the syringe then emptied into a small glass tube (Widal tube), about 8 mm. in diameter, which has previously been rinsed out in normal salt solution. The tube is rotated endwise every thirty seconds, and that point at which the blood no longer flows from its position but maintains its surface contour when inverted is taken as the end point. Care must be used to exclude air bubbles, as they tend to accelerate coagulation.

It is true that this method is not all that could be desired, but it is superior to any of the methods now employed for the purpose.

In this work I examined the blood of two hundred and fifty-five cases, but for some reason or other I found it necessary to discard fifty-two cases. Some cases went home, some died, a few objected to the injection of the hypodermic needle and I could only get one specimen for examination. Of the two hundred and three remaining cases I had every opportunity to make numerous tests and verify my work from time to time.

Of the two hundred and three cases I used for this work, not all were idiopathic by any means,

but they were the most suitable out of the nine hundred and fifty cases I had to select from, and were free from clinical evidences of organic brain or cord lesions. They included both males and females from ten to sixty years of age.

The blood was taken during the interval between convulsions, during convulsions, just preceding and following convulsions.

The work was done routinely between two and four-thirty p. m.; the same method was employed in each case, and I personally took the blood and determined the time of coagulation and my results were as follows:

One hundred and eighty-seven or 92 per cent of the cases showed that the coagulation time of the blood fell within the normal limits of stated time, 5.5 per cent fell under the minimum time and 2.5 per cent were over the maximum. The shortest time for coagulation was two and one-half minutes, the longest fourteen minutes.

I found but very little variation and nothing at all consistent in the coagulation time with reference to their convulsions. It mattered not whether the blood was taken during an interval between their convulsions or during status; the difference in time was such that it could be accounted for in many plausible ways.

In conclusion I would say: 1. That convulsions in idiopathic epilepsy should no longer be attributed to the rapid coagulation time of the blood. 2. That there is no change in the coagulation time with reference to the convulsions. 3. That therapeutics based on this theory will prove a disappointment to the physician.

Thursday, July 16, 2 P. M., Hotel La Salle.

REPORT OF THE COMMITTEE ON THE PREVENTION OF EPILEPSY AND THE CARE OF EPILEPTICS.

CHAIRMAN: We have now come to the report of the prevention of epilepsy and the care of epileptics. No formal resolution has been made and there has been no meeting of the committee that I know of.

There is no report. If you wish a formal report it will be drafted.

DR. CORWIN: Why can't we make the address or the paper of Mr. Graves the report of the committee?

CHAIRMAN: It is moved that the paper of Mr. Graves be put in the form of a resolution. All those in favor signify by the usual sign.

VOICE: Seconded.

CHAIRMAN: It is moved and seconded that Mr. Graves' paper will be used as the report of this committee. Any discussion?

Dr. Geo. A. Zellers, Springfield, Ill.: *Ladies and Gentlemen:* You might wonder what there is to discuss, since when Mr. Graves kindly consented to have his paper constitute the report he has said about all that can be said about this subject of the "Cause and Prevention of Epilepsy." Epilepsy is not a new disease; it is as old as history. Alexander the Great died in an epileptic seizure; Julius Caesar was an epileptic; that is well known, historically. Napoleon stood in stupor at Waterloo, unable to avail himself of his opportunities, so you see, epilepsy has not been confined to the poor. There has always been research work in epilepsy; I have known of some of the work that has been done. I have had 250, or say 200 epileptics during the last 10 years under my observation. This research work has been pushed as fast as any other scientific research in relation to mental diseases. It is not feasible to talk of the prevention of anything until you know the cause. We did not know how to prevent yellow fever until we knew about the mosquito. I wish to speak just a minute of mechanical restraint. I was stupefied yesterday. A paper was read before this body at the Psychopathic Hospital on the Indications for Mechanical Restraint. My answer might have been, "There—not here." It was read by a progressive, human superintendent who has reduced it very much, but the point I want to make is—and there is present at this meeting a superintendent from the neighboring state of Kentucky, one of the large institutions of that state who can bear testimony to the fact—that mechanical restraint is never needed. Now, in particular, I want to emphasize this fact. Yesterday, Dr. Singer had a harmless insane subject brought into the room in shackles—that in itself, was inhuman; it was a confession of the state's failure; the human side was forgotten and they went back to the mechanical, but the very fact that this body sat and saw a man presented in mechanical restraint, that it was allowed, might lead to the opinion from this meeting that it is the way the insane must be cared for. I want to raise my voice against the proceeding you saw yesterday. It is not necessary; it is never justified; it is not human.

CHAIRMAN: There is a motion on the floor to adopt Mr. Graves' paper as the report of the committee on the "Prevention of Epilepsy and the Care of Epileptics."

Amos W. Butler, Indianapolis, Ind.: I wish we could have had, 20 years ago, some such papers as Mr. Graves and Mr. Lynch presented with which to

arouse the profession to the necessities of the cause. As it was, we had to organize ourselves and arouse the interest of the institutions in other states to secure the passage of the necessary laws and provide for the appropriation for the beginning of institutions, its organization and its present conduct. I want to say more of the state charities of which I have been secretary; they are interested in this great problem; as many of you know, the board has a clearing house of all the institutions and social agencies of the state. We have the reports of the poor who have been relieved, of all the hospitals for the insane and schools for feeble-minded.

Dr. Samuel E. Smith, the superintendent of the Eastern Hospital for the Insane, was one of the strong champions for a movement for institutions for epileptics. Early in our investigation we came to find out that the question of colony or village of public wards was not a question of epileptics but was a form of treatment which could be applied to all classes of public wards, as in Wisconsin, Michigan and Massachusetts; in a number of states, the juvenile delinquent, in Massachusetts and Indiana, the feeble-minded, and in Massachusetts, New York, New Jersey and Indiana, the epileptic; so we worked out a plan which would provide for a village for the epileptics, to be arranged on the village type and to be constructed with simple, inexpensive but substantial buildings. We were very fortunate in having our plan work out and carried out in the purchase of 1,245 acres of land and we arranged it so that women could be grouped on one side and men on another and we were very fortunate in the selection of the commission which bought the site and in the selection of the board of trustees which organized the institution and we think we were particularly fortunate in securing as superintendent of that institution a physician who recognizes the important problem of the care of the epileptics in a village or colony.

CHAIRMAN: There is a motion on the floor, that we adopt the paper of Mr. Graves as the report on the prevention of epilepsy and the care of epileptics. Let us dispose of the motion. There seems to be no further discussion.

All in favor signify by the usual sign, aye.

CHAIRMAN: It is unanimously adopted. Now this will be presented to the various legislators.

I wish to announce that the committee on the Causative Forces of Mental Deficiency, consisting of Drs. A. C. Rogers, Leonard, Towne, Pogue, Lindsay, Kehoe, Bliss, Sawyer, Mendelsohn and Grossman, kindly meet after the close of this meeting in the neighboring room.

DR. CORWIN: I think it would be entirely in place to offer a special vote of thanks to these two laymen, Mr. Graves and Mr. Lynch, for their

splendid contributions. I do this for the value of co-operation which the layman must give us. I make this motion and desire that it be moved and seconded that a special vote of thanks be extended to these laymen for their able contributions.

CHAIRMAN: All those in favor signify by the usual sign.

Unanimously carried.

STUDY OF A CASE OF INFANTILISM WITH HYPOPHYSEAL INSUFFICIENCY.

E. BOSWORTH McCREADY, M. D.

Pædologist, Southside Hospital. Pædologist, Guskys Orphanage Home.

PITTSBURG, PA.

Though so far cretinism is the only form of infantilism which has been definitely proved to be of endocrinous origin, the investigations of Fröhlich, Beidl, Cushing, Berkeley and others tend to show an extremely close relationship between ductless gland irregularity and those defects of development which may be broadly grouped under the term "infantilism." This relationship has seemed sufficiently close to justify the name of *pituitary* or *Fröhlich's* infantilism for that form which presents as characteristic features, obesity, lack of sexual development and increased carbohydrate tolerance. In marked contrast to the adiposo-genital dystrophy of the *type Fröhlich* are the cases of hypophyseal infantilism of the *type Lorain* in which the individual is weak, delicate and undersized with the bodily proportions of maturity rather than infancy. Probably, as Cushing says (*The Pituitary Body and Its Disorders*) in the end all of these instances of hypophyseal infantilism, due to pre-adolescent hypopituitarism will be grouped together, whether they exhibit adiposity or not.

I venture to report the following case because in my mind the evidence (at the present stage of our knowledge) seems weighty enough to support the contention that, while other factors may have acted as causative forces in the infantile condition, yet the symptoms point strongly toward an hypophyseal insufficiency as an important causative or at least complicating factor. The patient came under observation during the course of examination of the children under the

care of one of the local child-caring agencies and on account of the many features of interest which he presented was placed in my private institution for purposes of study.

J. F. Male. Born April 19, 1898, making him 15 years 10 months old at first observation, Feb. 2, 1914. Height, 4 ft. 3½ inches. Weight, 59 lbs. Cranial circumference, 21 inches. Father drinks heavily at times; one sister of 12 is delicate. Family history otherwise is negative. Patient began to walk and talk at usual time. At age of 2 fell through a coal hole, though no injuries attributable to the fall can be definitely ascertained, the possibility of injury to the base of the skull must be noted. A scrotal hernia was first noticed at this time as was the polydipsia and within a few months asthenia, poor muscular co-ordination, etc. The boy had been allowed to run the streets, he had chewed tobacco habitually and had



Fig. 1. Showing Bodily Infantilism with Tendency Toward Feminine Type of Distribution of Adipose Tissue.

been intoxicated upon several occasions. He very often left his home in the morning and would not return until eleven or twelve at night. He was given to petty thieving, would "lie like a trooper." He had the faculty of appealing to the sympathy of strangers and was always able to get any money he wished for immediate purposes by begging. Another source of income was through beating the games of chance in the cigar stores and selling the articles he won. He ate at all hours and capriciously, mostly sweets, and drank huge quantities of water, often several quarts at one time.

Physical condition: His height and weight as given above corresponds to that of a boy of about 10 years. He was poorly nourished, with marked muscular in-coordination which with a marked genu valgum made locomotion almost ataxic in character. Physiognomy



Fig. 2.

Figs. 2 and 3. Showing Immaturity of Features with Tendency Toward Maxillary Prognathism.

corresponded to that of a bright, somewhat delicate boy of 8 or 9 years. No anatomical stigmata of degeneration, except that hair grew rather low over forehead. Voice was a childish treble. Articulation poor, certain consonants being substituted for others as in very young children and in idioglossia. For instance, *little* was pronounced *wittle*, *write*, *wite*, and *water*, *watte*. No nasal obstruction, thyroid not enlarged, no dullness over thymic region, genitals not markedly small (like boy's about 10 years) and no pubic or axillary hair. Skin is fine and soft, with no perspiration. Mentally the child is alert with a certain sharpness which might easily pass for intelligence. His favorite method of attracting attention was to accost the stranger with the statement that if he told the year of his birth he would tell him how old he was. This he could do with surprising promptness, as well as other problems in addition and subtraction. His memory for dates, details of past occurrences and names was unusually accurate. He possessed a large fund of miscellaneous information, for the most part useless. His most spectacular stunt was to read a newspaper or book upside down or turned sidewise with the same facility another person would read it in the proper position. These special aptitudes had come naturally as his attendance at school had been very brief and irregular. In fact, his teachers had stated that it was impossible to teach him anything. This, however, came through

his lack of interest, as his unusual memory makes it possible for him to make rapid progress when he so wishes.

The result of about 5 months' observation and treatment is as follows:

Examination of eyes under atropin by Dr. Edward Stieren showed hypermetropia. Both discs were pale and anemic, but there was no atrophy.

Radiographs of the sella turcica taken by Dr. C. N. Schaefer show it to be decidedly smaller than normal with a surrounding shadow suggestive of a tumor. The sellar outlines are particularly well shown in the stereoscopic plates.

Radiographs of the hands show greatly delayed epiphyseal ossification.

Blood pressure, 105.

Urine, excessive in amount, colorless, of low specific gravity.

Patient could retain 150 grams of laevulose without resulting mellituria. 200 grams gave rise to emesis.

His weight under the influence of proper feeding and hygiene began at once to increase. At present he weighs 65 lbs. With the increase in weight the distribution of subcutaneous fat became more of the feminine type.



Fig. 3.



Fig. 4. Showing Small Sella Turcica.

For the first three months he received a tablet containing very small doses of thyroid, thymus, pituitary, testicular, and supra-renal extracts. For the last of the three months he received in addition 2 grains extract of the anterior lobe of the pituitary. During this period absolutely no gain in height resulted. He was then placed upon one capsule daily of desiccated whole fresh oxgland mixed with milk-sugar to standard dosage. In three weeks he had gained three-quarters of an inch and to the present date (about 10 weeks) has gained one and one-half inches. He has gained markedly in coordination, in gait, and in activity. When first under observation the slightest exertion tired him so that he was compelled to sleep or rest. He is now able to take a walk of several miles without undue fatigue. The change in the boy's appearance is so great that his father states he would hardly recognize him as the same boy. By the Binet and Simon tests at the beginning of the observation he tested to approximately ten years, failing on the majority of the questions of comprehension, but answering correctly the criticism of sentences under the 11-year tests and interchanging the hands of a clock under the fifteen years. Tests made lately show improvement. He still fails upon questions of comprehension, dissected sentences, problems of various facts, and abstract definitions. He understands the use of the code but is unable to write a message without several errors and in giving opposites of words he barely passes.

He is egotistical to an extreme degree. Is childish in many of his modes of thought and action, though he cares little or nothing for the ordinary occupation of childhood. He is apt to cry when disappointed or when suddenly awakened from sleep. (This tendency to cry is noted by Boorstein, in his report of a case, in the Jour. A. M. A. of July 11, 1914.) His disposition is usually happy and care-free when left to follow his own bent. He is practically fearless. In fact, a certain affinity seems to exist be-

tween him and birds and animals. About once a month the wanderlust seizes him and he has to be carefully watched for a few days. He learns easily when his interest is involved but in spite of his unusual memory for figures he makes very ordinary progress in arithmetic because of lack of concentration. Considering the fact that he has gone to school but very little his ability in school work is about what would be expected of a normal boy of his age with corresponding lack of instruction. While apparently realizing and acknowledging his deficiencies he seems to think that these are counterbalanced by his special abilities, and has no ambition to be like other boys of his age. In fact, he will deliberately neglect to take his medicine, because, as he has stated, he has no desire to grow. He evidently feels that this would deprive him of all claims to special recognition.

Summary:—Skeletal undergrowth, quantitative and qualitative, the small sella turcica, high carbohydrate tolerance, polyuria, absence of perspiration, absence of pubertal changes, all point to an etiological complex with hypo-pituitarism as a prominent factor. The sudden growth response to pituitary feeding tends to confirm this assumption, though it is granted that it is possible that this may only have been coincident.

Thursday, July 16, 2 P. M., Hotel LaSalle.

MR. CHAIRMAN: I am going to call for the report of the committee on "The Prevention of Insanity."

PREVENTION OF INSANITY.

DR. KING: (Chairman of the Committee),
Ladies and Gentlemen: We have given these



Fig. 5. Showing Long Tapering Fingers with Delayed Epiphyseal Ossification.

resolutions considerable thought and hope they will meet with your approbation. At the same time, these resolutions will be open for discussion and we would like to have them fully discussed so that we can arrive at the very best results.

"WHEREAS, It is well recognized by alienists and neurologists the world over that certain major factors are the chief causes of physical conditions accompanied by mental derangement and deficiency, and

"WHEREAS, These major causes are largely, if not wholly, controllable and eradicable, and

"WHEREAS, These major causes are alcoholism, habit producing drugs, venereal diseases, work in insanitary and unhygienic surroundings, and hereditary influence, including the immigration of the physical and mental unfit; therefore, be it

"Resolved, First: That we recommend to the proper state authorities, the absolute control of the sale of alcohol until such time as actual prohibition be enacted.

"Second: That the sale of all habit inducing drugs be strictly regulated in all states of the Union.

"Third: That municipal or state control of venereal diseases be established, with proper treatment for indigent patients, to the end that the spread of syphilis and gonorrhea be prevented.

"Fourth: That proper special hospitals for the care and treatment of alcoholism and drug addictions be established.

"Fifth: That municipal, state and national inspection of labor conditions be regularly maintained and child labor abolished.

"Sixth: That no known defective dangerous to himself and to others, should be permitted to have unrestricted liberty.

"Seventh: That adequate teaching of the principles of heredity and sex life be initiated and fostered in the home with the view to its introduction into the curricula of schools—above the grammar grades, this instruction to be given to the sexes separately.

"Eighth: That the various states pass reasonable and universal marriage laws, that will be reciprocal, in preventing the marriage of the physical and mental unfit.

"Ninth: That a psychopathic laboratory be connected with the criminal courts, common schools, railroads, transportation companies. Public service utilities, responsible for the actual safety of the general public, should have their employees regularly examined as to their physical and mental fitness.

"Tenth: That, inasmuch as state, county and city public health institutions should have as their superintendents men of highest qualifications, who may devote their best efforts to their tasks, we recommend that all such positions be subject to civil service examinations.

"Eleventh: That, in addition to the above, we

recommend a nation-wide campaign of education conducted through the public press, university and medical schools, boards of health, state, county and city boards of education, women's clubs and other proper educational mediums, upon the true significance of the development—physical, mental and moral—of the individuals and the race and finally, we recommend that a committee be appointed to promote the enactment of the above resolutions."

Signed by the committee on Prevention of Insanity:

Drs. King, Chairman, Grinker, Sterne, Neu, Munro, Gahagen and Lewis.

The appointment of the committee to promote the enactment has been left open.

DR. CORWIN: I move the adoption of this report.

DR. STERNE: I second the motion, but make a motion that a psychopathic laboratory be added.

CHAIRMAN: It is moved and seconded that this report which has been read be adopted. It is now open for discussion.

THE CHAIRMAN: The report is adopted.

THE CHAIRMAN: We will have the report of another committee. "Causative Forces of Mental Deficiency."

DR. ROGERS: *Mr. Chairman.* Your committee on the Causative Forces of Mental Deficiency begs leave to report:

We feel it unwise at this time to make any recommendations in regard to constructive legislation owing to the lack of proper evaluation of available data as to causes and sources of mental deficiency. We do, however, recommend and urge segregation of mental deficients and the furthering of investigations as to the causes and sources.

(Signed by members of the committee).

Drs. Lindsay, Sawyer, Mendelsohn, Bliss, McCready, Rogers, Leonard.

A RATIONAL SYSTEM OF MEDICAL, PHYSIO-PSYCHOLOGICAL AND MEN- TAL TESTS FOR THE DETERMI- NATION OF EXCEPTIONAL DEVELOPMENT IN CHILDREN.

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Educational Director of the National Association for the
Study and Education of Exceptional Children.

PLAINFIELD, N. J.

When one speaks of "exceptional" children, most persons think first of the lower ranks of mentality, and take it for granted that the term

"exceptional" is euphonic for "mentally defective," "feeble-minded," "subnormal," "abnormal," and the like. There has been, and still is, a great confusion in terminology when this subject is discussed, and one of the first and most important steps to be taken is to agree on some suitable set of terms and a classification which can be accepted as a working basis. The author of this paper has suggested such a tentative classification and terminology which was practically adopted by the American Academy of Medicine in 1909, and which since has been favorably commented upon and used by many individual workers and institutions.

In this classification, the term "exceptional" is employed as a general term including all kinds of deviations from an accepted standard or established type of normality; deviations upward no less than downward. It has reference to exceptionally gifted children as well as to the feeble-minded and abnormal. Between these extremes, the representatives of which are naturally few in number, there is a vast range of mental differences. Great numbers of children who are potentially normal are warped in their development and further endangered by faulty methods of education, environmental handicaps, disease and other causes. There are individual differences in the physiological and mental growth rate which, under traditional standards of education and measurement, throw children completely out of gear. There are the cripples, the blind and the deaf; those who suffer from psychopathic conditions; those whose otherwise normal development was checked at some time or other by determinable causes; and a large group of primitive minds such as are normal within their limits but representing a level of mental achievement long outgrown by the majority.

Whenever this problem is treated, there are three distinct points under discussion: First, the confusion of terms which has been one of the reasons why mental deficiency has received such a disproportionate share of the discussion of exceptionality. Second, the faulty standards of school education and scholastic efficiency which have stigmatized many children as defective who merely represented a difference in type, or a remedial handicap. Too many have been set down as backward, mentally inferior, weak-minded or incorrigible whose difficulty consisted

in the fact that the "system" did not reach them. Third, the most potent cause of a misunderstanding of the situation must be found in the methods of testing which were employed when educators and physicians began to study individual children. Quite a large number of investigators have been led into believing that we have with us a large and ever increasing number of defective, feeble-minded children, and that it is this group from which are recruited the ranks of prostitutes and criminals, of human failures and wrecks.

Because these three points have not always been present in the minds of research workers, much confusion and apparent contradictions have arisen.

In the discussion of the first point I may be permitted to refer once more to my tentative classification which endeavors to establish a fair perspective for all types of exceptional development.

In the matter of *school adjustment*, it may be readily admitted that educators are now fully awake to the needs of individual differentiation. The introduction of manual training, of special schools and classes, of pedagogical clinics and vocational guidance, of medical inspection and methods of child hygiene and of other similar agencies, has done much to alleviate the injustice which many children had to suffer in the past. The startling figures, established by medical examiners of school children, have begun to throw a dismal light on the conditions producing failure and deterioration. It was found that the prevalence of many diseases (other than the so-called children's diseases, like measles, scarlet fever, etc.), explained a great many of the handicaps which caused children to lose in the race for success in school. (For 4 per cent of all children were found to suffer from defective hearing; 20 per cent at least from nervous disorders; 25 per cent from eye-strain; as many from nasal obstructions. The list may be extended.)

How different *methods of testing* affect the findings, especially when there is obscurity in terminology, may be shown by many instances. Some investigators have placed the number of feeble-minded as amounting to 2 per cent of all children; while other investigators, in other localities, found considerably smaller percentages. On Ellis Island, where the medical examiners

recently introduced some interesting methods of rapid testing of immigrants suspected of mental defect, it has been shown that not more than 0.2 per cent can be called feeble-minded. Again, it has been claimed by some that the majority of the "incurables" and juvenile delinquents were defective. But of the 1276 children who were arraigned during the past year in the Children's Court of Buffalo, only 53 were found to be retarded in mental development (a little over 4 per cent). Of these 53, only eight, or about 0.63 per cent of the total, could be pronounced distinctly feeble-minded, using the Binet Scale. In the Seattle Juvenile Court, in 1912, careful examination revealed only 6.4 per cent as feeble-minded, the majority of them so-called borderland cases. Even if, in some larger centers of population, the percentage of feeble-mindedness should be found to be greater, the methods of testing would have as much to do with the result as the local conditions of congestion, economic pressure, etc., and no sweeping generalization should be made.

In any system of tests that will give reliable data, the *causes of mental exceptionality* must be discovered as far as possible. The greatest difficulty will be offered in the study of hereditary and congenital causes, including venereal infection. For the information about family data will never be reliable until we have a national system of vital statistics. Careful records of births and deaths and their accompanying circumstances should be kept, including as much of the parental history as possible, and these data should be accessible for the scientific study of every individual child. The medical fraternity can greatly help these studies by establishing to the best of their opportunity the anamnesis and etiology of each case, and by carefully studying hereditary and congenital causes. Professional discretion will, of course, prevent physicians from making the facts thus discovered public; but it seems justifiable to expect their co-operation, if necessary by legal provisions, in those cases of grave defect where the state and the community have a deep interest. A commission composed of experts should be created in every state or community and should have full power to obtain all the information on a case in question such as may be obtained from anywhere.

Apart from such environmental causes as neg-

lect, unwholesome companionship, economic pressure, mistakes in education and the like, the causative factors of deterioration and delinquency are largely pathologic. There is often physical precocity or the reverse, producing tension between the various functional conditions of the individual. It is clear that a premature body will throw a less mature mind out of balance, through the superinducement of instincts for the coping with which the less rapidly grown mind is not prepared. Vice versa, an immature body will produce a strain upon an unusually developed mind. Then there are a great number of functional neuroses, quite clearly defined in many children who are serious problems to their parents, teachers, physicians and the courts. What has been called the "psychopathic personality" is by no means rare among children. Hysteria in certain forms can be observed in children. Epilepsy is another element but when it is a source of youthful delinquency it appears psychic in form; children show sudden attacks of excitement, outbreaks of temper, destructiveness, hitting other children, etc. Then we have cases of moral deficiency or weakness which is not infrequently coupled with intellectual keenness and which requires special methods of investigation and treatment.

Thus, the problem of juvenile delinquency has been clearly shown to be in a large measure a problem of medical survey and relief. Physicians attached to juvenile courts have testified to the fact that medical and surgical attention has cured many a "criminal." As the period of adolescence is the one furnishing the greatest number of juvenile delinquents, it suggests itself that disturbances in the sexual sphere, local or psychopathic, or as atavistic phenomena reverting to primitive forms of the instinct, are responsible for much deviation. Even pre-pubertal irritation has caused havoc. Sex abnormalities in the male and the female child, such as lead to rape and prostitution, have often a background of neurotic constitution.

Bearing out these contentions, Dr. Lilburn Merrill's findings in the Seattle juvenile court show the following causes of delinquency in the cases studied by him: 52 per cent were due to social and economic conditions; 29.5 per cent to physical pathology, including neurotic heredity, sex pathology (including phimosis), adenoids

and enlarged tonsils, malnutrition, eardiopathic conditions, sensory defects, etc.; 18.5 per cent to mental pathology, including moral deficiency, backwardness, epilepsy and feeble-mindedness.

From all this it will be seen that the testing of children for the determination of their supposed exceptional development is the essential prerequisite and is by no means a simple matter. A mere scale of intelligence, so-called, as for instance the Binet scale, can never give a valid measure of a child's status. There must be a thorough study of a child's history, environmentally and physically; there must be an understanding of his heredity, his education and a number of other points. It is therefore refreshing to read Dr. Merrill's sentence: "Any system of tests by which alone it is attempted to classify the child as being of a given mental age involves the fallacy of pseudo-exactness and needs carefully to be avoided."

The author of this paper has ventured to offer a set of tests and investigations which, while as yet by no means final, may illustrate what ought to be done. The complete form includes the following schedules:

First, a child history giving data previous to the time of examination; second, a set of body measurements; third, a system of medical and physiological examinations; and finally a scale of physio-psychological and mental measurements which, in conjunction with the other investigations, will allow of some sort of definite conclusion as to diagnosis.

The *child history* data comprise as full etiological statements as can be obtained, referring also to the family history of the case. They also provide for information on the child's physical, moral and mental development, his schooling, his peculiarities and habits, his abilities, attempts at relief of any difficulty, physical or mental, etc.; and it is supposed that the data are furnished by the parents with the co-operation of the family physician or the specialist consulted.

The *body measurements* are of the usual anthropometric type, including height and weight, chest expansion, girths and diameters.

For the *medical examinations*, several distinct blanks have been provided. The first is in the nature of a cross-section examination, giving a general picture of the child's physical condition.

The succeeding blanks require the co-operation of specialists and suggest such special laboratory tests as will make the examination comprehensive. They ask for important anatomical data, skull measurements, x-ray photographs of the carpal bones, etc. Further data refer to the musculature and special characteristics, peculiarities of the face, of the genital organs, and the like. The functional charts are for a close examination of the special senses, chorea tests, neuromuscles, speech, heart, lungs, blood, etc. The newer tests, like the Abderhalden's, may be added.

Finally, in the working out of those tests which are intended to probe the mental reaction of the child, a distinction has been made between the *intelligence* tests proper, and those which refer to *physio-psychological* reaction. For example, the recognition and naming of colors are not in themselves tests of intelligence; they depend upon the physiological ability to distinguish color, and the ability to attach a name to a clearly differentiated color. A color-blind child will neither match nor name colors correctly no matter how intelligent he may be. Again, the visual and aural memory span is of great importance; but it is not in itself vouchsafing intellectual strength. Memory is the indispensable tool of the mind; but even idiots may have a remarkable memory which their mind may not use to advantage; and some highly developed minds battle with the freaks of their memory all their lives.

But both the physio-psychological and the mental development depend upon certain biological factors of growth. These have been reflected in the history of race development. It will be impossible to draw clear lines of demarcation between the chronological years in a child's age, as to his mental standard, inasmuch as the anatomical, physiological, psychological and mental growths do not run in parallel lines or at equal rate of speed in all individuals. But it is feasible to mark off, in a general way, certain *periods of development* in a child's life. These periods correspond broadly with the periods of race development, by way of a succession of ascending instincts and mental attitudes; also in the rate of reaction, in the matter of motor co-ordination and response, memory span, etc. The author has distinguished for such periods: the first being the primitive or human

animal period; the second, the race period in which race characteristics evolve from the general human potentials; third, the nation-forming period, which is concurrent with the pubescent stage; and finally, the period of individual differentiation which develops the adult of mature age.

The tests include sense tests, tests in judgment, association, motor co-ordination, expression, esthetic attitude, etc., and are elastically arranged so that omissions, substitutions and additions are possible without affecting the underlying principles.

The objection may be raised that such a comprehensive examination is impossible in general practice, or under the conditions of schools and courts or similar opportunities for clinical investigation. Without entering into a complete discussion of such an objection, I will briefly say this:

No examination which aims at rapidity can be thorough and reliable; it tends towards fallacious deductions. Even the strictest adherents of the Binet scale have been adding medical examinations and many other data to their scheme, and many Binet examiners have amplified the system itself by the introduction of further tests. One of the most ardent students of the Binet scale assured me that he considered it a grave mistake that physicians, especially neurologists, have fallen into the habit of using these tests for a rapid office examination of children, for the determination of their mental status. Even when a child falls three or more years below his chronological age—a condition which some think gives the Binet tests a chance of value—I have found in numerous instances that the conclusion of intellectual inferiority is not always tenable, as the child's opportunity for training has to be considered and the kind of tests used, and passed or missed, give a warped picture of his mentality.

Of course, an investigation like the one suggested by the writer will have to extend over some period of time, and cannot be completed in one sitting. But, to exemplify my case, I will say that in the matter of juvenile courts, the detention home should be developed into an observation clinic where tests can be made at leisure and under easily controlled conditions. Every school system should have such an observation

clinic, equipped with the proper apparatus and assistance. A number of the tests here suggested can be made in the schoolroom, upon many pupils at one time. Experience will teach the examiner where his results will allow of conclusions without applying all the clinical details. I have at present an arrangement under preparation which will automatically limit the examination to the essentials.

One of the most important helps which my tests have given, I think, is that they enable us to distinguish between *types of mind* in children. Mere backwardness, educational neglect, simplicity and primitiveness of mind have too often been confused with true mental defect. Many of our delinquents, *e.g.*, are primitives, not feeble-minded. You cannot call the Mexican peon, or the follower of Zapata, a feeble-minded person; yet, his instincts, his valuation of life, his ideas about property differ so essentially from our modern standard that he would constitute a criminal, actual or potential, in our American civilization. Thus, many of our delinquents represent a type parallel to this primitive stage.

In these primitives, we have borderland cases where there is a mixture of retarded and arrested development, and of mental defect of the psychopathic type. We must be careful in differentiating these types for the sake of scientific accuracy, even though the treatment of individuals representing these types may not always have to differ in kind. But it is clear that the term "mentally defective" includes both the feeble-minded and the insane.

I may be permitted to illustrate at least some of my points by quoting a few cases briefly from among those that have come under my observation.

The first two cases were referred to me by the Juvenile Court of San Francisco, last year:

Case 1. F. C., boy, aged 15 years. Reported because he is unable to retain any job, and has become practically a vagrant. The mental tests proved him to be intellectually very immature, and certainly badly unschooled. His physical condition showed that he would have needed special treatment for many years past; septum deflected on right side of nose; with great obstruction to breathing. Nasal catarrh. This constituted so constant an irritating condition that it required immediate surgical relief. Hearing reduced by two-thirds in right ear with occasional discharge indicating otitis media and calling for treatment to prevent further deafness. The boy proved to be an

epileptic, with attacks dating back at least two years. On the basis of these findings the following report was sent to the Court: The boy is unable to undertake independent employment. Should have surgical relief and be placed in a home for epileptics where also his manual faculties may be developed. He is entirely unfit for education in the public schools.

Case 2. F. J. F., boy, aged 16 years. Had been arrested for repeatedly attacking his father, even his mother, and not doing well at anything. When brought to clinic was handcuffed, sullen. His mental development, was found to be exceedingly uneven. He showed much power of rational judgment together with singular retardation in specific applications. He gave the impression of a mentally neglected child. He represented a transition period from childhood to adolescence with all the mental disturbance characteristic of that epoch. Emotionally he was under a distinct strain, being sullen and antagonistic under unsympathetic influences such as his home represented, but yielding to personal sympathy. He was hardly mature or trained enough for independent work. The medical examination revealed catarrh of the throat, enlarged turbinates which obstructed the nasal passages, and a long adherent prepuce. Nasal treatment and circumcision were indicated for immediate relief, and it was suggested that he be placed away from home somewhere where he would have firm but kind discipline and special training without stigma.

His case suggests the fact that it is easier to make such a recommendation than to have it carried out. At the present time, there are hardly any places in existence, under public control, which would have given this boy a chance. Reformatories, so-called parental schools and the like, as they are now organized, are not the things needed in such a case.

The following cases I have had under observation in the East, in part in our institution for atypical children, at Watchung Crest:

Case 3. G. S., boy, aged 15 years. Very backward in school when first reported, and a bad stutterer. Extremely nervous and morbid from infancy, and given to tempers. His principal physical troubles were the following: Diminutive in size for his age, and sexually underdeveloped. Very defective eyesight, through muscular insufficiency. Readily fatigued. He has no visual perspective, owing to his defect, and his visual and aural memory span is limited. At present, a year after first reported, has improved splendidly in every direction under training. Has acquired considerable ability to concentrate and to endure, also to control his speech defect. His backwardness has been in part overcome since his difficulty was understood. Organized manual work, especially outdoors, has helped him to develop muscular control and generally in physiologic function.

Case 4. R. F., boy, aged 17 years. Of good appearance, above average in size; good conversationalist and apparently intelligent, with ability to do a number of ordinary things. But he, the son of wealthy

parents, had never done well and had recently drifted into bad habits, undesirable companionship and even delinquency. The medical examination was largely negative except that circumcision was strongly indicated to correct preputial hypertrophy and his bad sexual habits. The mental tests revealed the causes of his somewhat shiftless and dangerous life. Visual and aural memory very poor, and what was retained was not retained in proper order. Muscular memory unreliable, sense of balance impaired. Reproduction of oral information only fair. The judgment tests showed distinct weaknesses; where he succeeded he needed much time and the opportunity of a second and third attempt. His methods in manual and art expression were distinctly primitive. In language, he was quite proficient and could talk very intelligently; yet, when he was to formulate his thought in writing, he was vague, and loose in construction. It was plain that this boy, having grown up without the proper recognition of the special training he needed, could profit little from ordinary school instruction and influences. When let loose, he had no perspective of situations and causal relations, and could not learn quickly enough from experience, owing to his unreliable memory. He had, however, sufficient intelligence at bottom to be helped towards considerable improvement through a kind of training which took his needs into consideration. He became a very tractable and very much better boy, and has good prospects of becoming finally saved if he can be long enough under the reconstructing influence.

Case 5. L. D., boy, aged 17½ years. This boy recently barely escaped being placed in an institution for the feeble-minded. He had been unmanageable, inefficient, morbid with suicidal tendency, backward and given to many forms of sexual perversion. His medical examination gave a clue to his mental difficulty. Weight and height above normal, making him very heavy for his age. Flat-chested; heart beat somewhat weak and râles in right lung. Network of varicose veins on both buttocks. Sexual organs show contrasting development; overgrown penis with entirely undeveloped testicles. Had been masturbating since childhood; indulgence in homo-sexual practices resulted in funnel-shaped rectum which caused chronic constipation. Careful exercise in the open air and special treatment relieved these serious conditions so markedly that a great change has come over the boy. His sexual inverted acts have ceased. His mental tests, after his main difficulties were removed, proved very satisfactory, showing him to be an absolutely normal boy, with creditable power of judgment, logical and associative faculties and good concentration. His memory span in visual and aural impressions is still narrow, and he has difficulty in graphic and constructive expression, being rather primitive in these things. The boy is plainly capable of considerable advancement, and with the further improvement of his physical condition there will come a gain in temperament, application and perspective. He needs atten-

tion to prevent a recurrence of the neuropathic condition which underlay the other symptoms. He needs training in memory, mental coordination and discipline.

Were my time not limited I should wish to present another interesting case in detail. A few items must suffice. The boy, now twenty, is distinctly primitive; to call him feeble-minded in the accepted sense, would seem a superficial valuation. He is still very backward in his school studies, and did some absurd things in his judgment tests. Yet, in others, those that required action of some kind, he did remarkably well, showing considerable penetration and quickness to learn a new thing. Thus he learned to do all the five tests with the Knox cubes; connected 100 dots rationally and immediately; was normal with his formboard and the dissected pictures, etc. His drawbacks were, first, his extreme slowness in response, and second, his very narrow memory span, both visually and aurally. They account for his difficulty in learning and in building up a conceptual world on the basis of experience, for he cannot well learn from his so easily forgotten errors and experiences. The boy shows other faults which would stamp him ordinarily as a criminal. He has dirty personal habits and has a strong inclination to pilfer eatables and glittering things, jewelry, money, etc. The money can have no attraction for him as he does not understand its value; neither has he any conception of the value of jewelry. There is simply the attraction of the tempting objects and the tendency to hoard, even though he forgets the hiding places. Again, even when he has had a full meal he will steal eatables in large quantities and gorge himself to nausea. All these traits are distinctly those of savage people, and would be altogether normal among the Igorotes, New Zealanders, and the like. In other respects the boy shows intelligence, is good-hearted, companionable and unselfish, likes to work, on a primitive level, and is as harmless as a child.

This in an extreme case. But if you think of the racial strata that produce the Black Hand crimes, the Mafia, and similar outcroppings of an underdeveloped moral conscience, you will admit that we must recognize the existence of civilization levels in modern society which broadly correspond with the types of lower civilizations of past ages. Here we are dealing, not with atavistic or degenerate individuals, but with groups and with layers of society. In some instances, as with the Camorristi of Italy, we may discover distinct psychopathic epidemics, closely allied to epilepsy, hysteria and mania.

It will have impressed you that in many of these cases the visual and aural memory span is short, which prevents the child from profiting by experience. Again, there is very often some

functional neurosis or some other disturbance of normal functioning.

From all this it will be seen that we must agree on some suitable classification and terminology so that there would be no confusion. We must distinguish as clearly as possible between fundamentally different types of exceptional development. We must further recognize that only a small number of exceptional children belong to the unredeemable type, to the human refuse heap, so to speak, and that the vast majority even of the distinctly handicapped children may be saved for useful citizenship, by proper methods of diagnosis and training. And finally, it is plain that a reliable diagnosis must depend upon a really thorough study of a child's physical and mental condition. Whether or not the system of examinations suggested by the author of this paper will stand the test of further experience, or not; I hope you will agree with me that something of this sort is needed. There must be medical and pedagogical co-operation, and legal methods must be devised by which the status of the exceptional child can be better determined. In the medical field, the psychopathic and neuropathic aspects of the problem are becoming more and more recognized and the co-operation of this great body of research workers is therefore most urgently invited.

ORGANIC BRAIN LESIONS IN MENTAL DEFECTIVES.

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In my work at Vineland I examined all admissions, physically, where I observed a much larger percentage of heart murmurs than occurs in a corresponding number of normals, also a larger proportion of significant stigmata of degeneration; psychiatrically, where I found that the proportion of cases of dementia praecox, (grafted on feeble-mindedness), was greater than in the general population; and neurologically, where I found that every case of feeble-mindedness I examined admitted to the institution from the highest to the lowest grade showed organic brain lesion. It is these latter cases that I wish to discuss in this paper.

I had noticed this fact in the cases that came under my notice previously, from time to time,

but I never had them "en masse" where I could realize this fact in all its significance, that all cases of mental defectiveness and perhaps mental defect, show organic brain lesion, that is a lesion anywhere between the cortex and medulla oblongata inclusive.

My report is based on one hundred cases examined as they were admitted to the institution at Vineland, and twenty-five cases of the high grade borderland type of delinquent selected at random and examined in the Psychopathic Laboratory of the Municipal Court of Chicago. This group of 125 cases was examined specifically with the object in view of studying intensively the significance of always finding organic lesions in all these cases, to further substantiate or refute, if possible, the theory that there is no psychoses without neuroses, and no pathopsychoses without pathoneuroses.

We could, of course, augment our findings in these cases by referring to the large number previously examined at various times and places. We regret very much that we have not more cases examined from the delinquent class, as here such findings, if substantiated, will be of very great significance. Our laboratory, however, has been open only about ten weeks and our time has been taken up more or less with its establishment, and it is for this reason and not lack of material that we have examined so few.

The number of cases not out on bail, handled in the boys' court, daily averages about 38. A large number of these are repeaters. If there were not so many repeaters among these boys the task of making physical and mental examinations would be quite a formidable one, but as you see, it will not be long before we will have caught up with the old ones and the task of examining the new ones will not be so great.

It is a noticeable fact that we have very few negroes come into the court, and those that do, so far, have tested quite high. It looks from our experience that feeble-mindedness, as such, is rather rare with full-blooded negroes. If this is so, and whether there is any connection here between the absence of metasyphilitic affections and alcoholism in the negro race, remains to be seen. On the other hand, tuberculosis, which is considered one of the intrinsic as well as extrinsic causes of feeble-mindedness, is very prevalent in the race.

Before going on with a description of the neurological findings, it might be well to discuss the tests a bit on which our diagnoses of mental defectiveness were made. The mental test used at Vineland was the Binet-Simon. At Chicago we have been using the Binet-Simon, Rossolimo, graduated association, and the common tests used in the psychiatric clinics of Berlin, Zuerich, Giessen, Munich and other cities, as the Binet-Simon test has only limited applicability.

The Binet-Simon test, as you know, only covers the ages from 3 to 12, and is consequently of very limited use in work with the feeble-minded, who test above twelve years, and we feel that we must condemn the practice of those, unfortunately at present too numerous, whose diagnostic ability is limited to the Binet-Simon scale, from certifying everybody who can pass the twelve-year old test, as of normal mental intelligence, also of marking adults who might not quite finish the twelve year test, as 10, 20, 30, or any number of years backward, depending on their age beyond eleven or twelve years. The most that could be said here, since the intrinsic mental development ceases at the highest about twenty-five years, is that the greatest difference could only be that between what was recorded on the scale and age twenty-five. Another equally unjustifiable use of the Binet-Simon scale is to diagnose all cases who scatter, as insane, or epileptic. That the insane and epileptic may scatter on the Binet-Simon scale, especially when grafted on feeble-mindedness, no one will deny, but that everyone who scatters on the Binet-Simon scale is insane or epileptic, we must emphatically condemn. Scattering, however, is often a sign of beginning arrest of development. The Binet-Simon scale has many uses of a qualitative as well as quantitative, and also even prognostic, nature in younger children, but is not an off-hand method of psychiatric diagnosis through scattering. We have had many cases who have tested plus throughout on the Binet-Simon scale, and yet were outspoken cases of dementia praecox, epilepsy, etc.

The Binet-Simon test has been standardized now in France, Germany and America, and has been used on large groups in other countries, but we find the giving of this test is just as much in need of standardization.

At the end of six weeks of our work in the laboratory we made a report before the annual meeting of the American association for the study of the feeble-minded, held at Columbus, Ohio, June 18, last, on the findings in the boys' court, in relation of mentality to delinquency, "The Defective-Delinquent." In that report we stated that up to that date we had examined 245 boys. 207, or 84.49 per cent were morons; their average chronological age was 18.71 years; their basal age 8.69 years, and total mental age of 10.98 years. 20 of these 245 cases, or 8.16 per cent were borderland cases, with an average chronological age of 20.10 years, a basal age of 10.42 years, and a total age of 12.27 years.

We found only 18 cases out of the 245, or 7.34 per cent who gave a normal mental development, with a chronological age of 20.94 years, a basal age of 10.83 years, and a total mental age of 12.70 years. Some of these showed mental defect in contrast to mental defectiveness.

It is interesting to see at what ages the boys first get into court; the lower the mental age the earlier they get into the toils of the law.

In order to mark above twelve, we have been using some questions suggested for fifteen years and adults, which have failed in an attempt at standardization, since they almost all test special rather than general traits, but nevertheless, if the case could answer any of them they were credited, and if not, there was no loss as we made it a rule to fall back on our other tests as soon as a case attained a basal year of ten or higher. This we found from experience to have been a wise precaution. Many cases doing well in eleven or twelve years would be found wanting on our other tests on which we rely, and many passing eleven and twelve-year tests failing on our others. We regard the eleven and twelve year old tests to be less reliable than the others of the series.

We have, however, one further test, which we have not yet mentioned, but which is the most practical and reliable of them all, and that is the world test, the economic test.

The segregation of these cases in the Boys' court has enabled us to discover that in addition to the physiological and psychological critical periods of a youth's development, there is also an economic or sociological critical period, the ages between 17 and 21 inclusive, with which this

court deals. These are the years when the boy is beginning to have responsibility thrust upon him, when he is expected to pull his own weight in the boat, to become independent, to find a place and make a place in the world. This is the most objective, adamant and critical test of them all. This is the crucible which tries them out when the assay is made.

The records on our boys show that they fill only the simplest, humblest and poorest paid manual occupations; that they rarely hold a position more than a few weeks or months and the few that do are the first to be laid off when retrenchment or efficiency comes into play. Social workers, big brothers, complained, wondered and did not know why their charges did not succeed until we brought to light the facts about the mentality of these delinquents. These boys are the waste material, the human driftwood of the economic-sociologic world.

The latest classification of the feeble-minded in America depended on the Binet-Simon scale, which, as we know, only goes as high as twelve years, and consequently is not applicable in detecting this large class of socially unfit, those cases of feeble-mindedness of a decided nature sufficient to prevent the successful meeting of conditions in the world. This classification is as follows: below 3 years idiots; from 3 to 8 years, imbeciles; and from 8 to 12 years, morons. It was too bad that the classification of morons had an upper limit of 12 years, for it omits an important group of feeble-minded whose condition first becomes conspicuous towards maturity. The age between 17 and 21 is a good age in which to diagnose mental deficiency, as before that it is often difficult to detect mental defectiveness and mental defect from simple mental retardation.

We must apologize for coining a new word to meet this group of economically inefficient cases, since the word moron, firstly, is not distinctive of the economic significance of these cases and, secondly, that it has gone into the literature as standing for those ages between 8 and 12, and, thirdly the morons are seldom even able to get along in the outer world under any conditions alone, while the other class do make the attempt and I, therefore, with great regret for the necessity of adding a new word to our already overcrowded vocabulary, suggest as a name for this

class of mental defectives testing over twelve, and economically and socially unfit, the name of "Sociopath," which fits in very nicely with the words neuropath and psychopath, already in common use. The work of the Boys', Domestic Relations and Morals court is largely sociopathic as a large proportion of their cases are the economic unfit defectives.

The neurological condition which I am about to describe is generally known as infantile cerebral paralysis; spastic paralysis; spastic hemiplegia, infantile type or infantile hemiplegia. Under this heading we include the diple-gias or Little's disease the paraplegias, etc. Of course, pseudobulbar palsy of the paralytic or spastic type is often present or accompanies these other conditions.

The 100 cases examined systematically at Vineland ranged in years from 5 to 25, and about two-thirds of them were males. The 25 cases examined from the Boys' Court in Chicago ranged from 18 to 21 years, and were mostly high grade borderland cases mentally. Besides these we had several cases ranging about 6 years, sent us from the courts for one reason or another. Of course, it is hardly necessary for us to say that we have controlled our examinations sufficiently on normal people, though we are not prepared to say yet that there might not be some cases, rare at any rate, which show some of the reactions of a spastic paralytic nature, and yet no mental defect or defectiveness can be determined. But we are sure that every case of mental defect or defectiveness in our group showed the reactions of the spastic paralyzes.

The infantile type of hemiplegia is differentiated from the adult type in that it does not follow the Wernicke and Mann predilection type of involving certain muscle synergisms. The older the child, the more developed the pyramidal tracts, the more prone are the paralysis and contractures to follow this predilective type. This is also a help in differentiating the congenital from acquired mental defectiveness.

When we strip our patient we often notice that the part of the body involved shows some lack of development. If it is a hemiplegia, one-half will show poorer chest development of that half, oftentimes of several centimeters. The shoulder blade and muscles, the buttock of the side and

leg, will all show an inhibition of growth; this is also quite in contrast to the adult form.

We will next notice perhaps that one or both large toes, oftenest one, is in a condition of continuous extension, much further extended as a rule than can be produced intentionally. This is a very common symptom, the continuous Babinski. If this is not present we try for the Babinski in the usual way. Many times if we do not get a Babinski we are not, at least, able to elicit plantar flexion. We then try the Oppenheim and find it present quite often. We also find very often a contralateral Babinski, or Oppenheim and often we find a Babinski on one side and an Oppenheim on the other. We have often brought out a difficult Babinski by a summation of stimuli. Another very good method that I have discovered is the re-enforcement method of Jandrassik, which was originally suggested by him to elicit difficult knee jerks. This seems to produce its effects in the same manner as a concomitant movement, which we see so spontaneously in these infantile forms in contrast to the adult form where an intended effort of a sound or involved limb will produce movement in the other which is so noticeable in the deplegias producing an agitation of the whole body when much effort is made, we see the normal physiological expression of this concomitant movement in the child before development of the pyramidal tracts. Another method for eliciting the Babinski is planter flexion of the foot. This is also peculiar to the infantile hemiplegias. In walking across the floor we often notice an extension of the large toe. We then try the Mendel-Bechterew, but so far I have never been able to elicit it. We occasionally elicit a Rossolimo and a Gordon, the latter more rarely, and it sometimes gives a contralateral reaction.

We find ankle and patellar clonus very frequently sometimes being elicited on tapping with the reflex hammer in trying to elicit the achilles and patellar jerk. We found the two latter reflexes, with few exceptions, always increased, though they are not always increased to the same degree in any particular case.

The cremaster and the upper, middle and lower abdominal reflexes were found variable, but almost always altered. Sometimes they would be increased, sometimes absent. The biceps, triceps and periosteal reflexes were, as a rule, in-

creased, though these we found much more variable than on the lower extremity. This might be accounted for on the possibility that most of the arm and hand movements being trained, and fine movements have developed on some remnants of the pyramidal tract which acts in its inhibitive capacity in contrast to the leg movements which are our original movements and stand more in relationship to the subcortical centers.

Involvement of the lower facial branch is very frequent, the upper being phylogenetically the older and therefore more under the influence of the subcortical centers is rarely involved. It is rare to hear the inmate of an institution for the feeble-minded whistling.

We next examine for spastic symptoms and contracture. One of the most common contractures in these cases is the equinovarus position of the foot, often accompanied by marked arching. We often see contractures of the hand in these cases where, in contrast to the adult type where the thumb is folded in the palm of the hand, in the infantile type it is extended along the index finger. These phenomena are not uncommon, especially the spastic symptoms; the contractures very often are not well pronounced.

One can often recognize the hypertony of a muscle by the touch, and one can bring out almost always some spastic symptoms by trying out the different ab and adductors, the flexors and extensors, and the inward and outward rotators of a limb. This search carried out systematically almost always brings results. We, of course, refer here to the later spastic symptoms and not the early ones which seem to be due to irritation of the lesion, through infection, etc.

A very large number of these cases only show residues of their paralysis. The older the case, as a rule, where the lesion was congenital, the more fleeting the symptoms, as the subcortical tract, being brought into play early before the pyramidal tract was developed and superseded it, takes over a great deal of the innervation that would have been cared for by the cortico-pyramidal tracts. Much of the damage is overcome through the vicarious action of the subcortical centers and the homolateral pyramidal tracts, though these latter are very poorly developed in man, but more highly developed as we go down the animal scale. Where both pyramidal tracts

have been involved the chances for re-learning are almost nil.

The diathesis action no doubt also plays a part here in elimination of symptoms, with time.

One has to be very resourceful at times to bring out all the symptoms present, especially in the residuary cases, but with patience I have never failed to find sufficient symptoms to justify the diagnosis of an organic lesion. These diagnoses, especially in the lighter cases, should only be undertaken by an expert neurologist and preferably one who has had considerable experience with the hemiplegias.

It might be interesting to add that in the one hundred cases examined at Vineland, eight of them were of the Mongolian type, running all the way from the low grade Mongolian idiot to the high Mongoloid type, and they all showed the same type of lesion as the ordinary feeble-minded. This is interesting since some believe that these cases are different from the ordinary feeble-minded and would make them the aristocrats of the mental defectives, but I have found nothing in my investigations to justify this, but rather the contrary as I find the same bad heredity, the same family conditions and also the same brain lesion as we do with the ordinary feeble-minded. The only difference is that in the Mongolian type the ductless gland system seems also involved. I would also like to mention here two diagnostic signs in these cases that often help one to a diagnosis, especially in the Mongoloid form, and that is the characteristic wrinkling of the palms of the hands and soles of the feet, which is similar to the furrowing of the tongue, which trio of symptoms I have never seen absent in a case.

We also examined a cretinoid who had brain lesion and who failed to improve on thyroid.

I have also resorted to other measures to corroborate these findings, especially in the light residual forms. It has been proven experimentally that the feeble-minded have a lower blood-pressure than normals, and the Mongolians lower than the rest of the feeble-minded. I found, using the Faught instrument for measuring blood pressure, where the case was one of hemiplegia that the affected side invariably registered from five to eight and even ten millimeters of mercury lower than the sound side.

The ergograph shows very plainly the side in-

volved. I also used the dynamometer, which gives clear-cut result. The affected extremities are also, as a rule eyonotic and colder than the sound side.

My notes on the intactness of the sensory side of the cord on these cases are somewhat incomplete, on account of the low mentality of many of the cases, from whom it was impossible to get an intelligent response. On the whole the superficial sensibility seems pretty well preserved. Pain, touch, hot and cold were almost always appreciated. The stereognostic sense in a great many cases was involved. They would know the article was glass, metal or wood, but would not know its nature. It is possible that the absence of contractures in so many of our cases could be explained on the ground of involvement of some of the deep sensory tracts. We know that a tabetic, or a diabetic or arteriosclerotic with cord involvement does not acquire the typical contractures of the adult after an apoplexy.

I have not gone into a discussion of the various theories as to the mechanism of the signs of the paralysis, as the facts in the matter are at present too little known experimentally. The anapresent too little known experimentally. The anatomy and physiology of the cortico-spinal tract are well known, but the sub-cortical tracts and their connections and relationship to the former are too little known.

In addition to finding these lesions in mental defectiveness we have been also finding them in cases of mental defect, by which we mean cases showing moral defect, formerly called moral insanity, or moral imbecility, kleptomania, etc. By mental defect here we mean the same thing as occurs where one has a defect for instance for music, mathematics, languages, spelling, etc. Many of these cases are the pests of the teachers in school, because they do not understand them. We had for instance a boy aged five chronologically, who was precocious mentally, testing age 7, on the Binet-Simon scale. He was sent to us by the court for certification for adoption. He had been returned after a few weeks trial by several of his foster parents because he manifested sadistic tendencies. He slaughtered chickens, cats, tortured insects and attacked a baby. This case showed an outspoken spastic hemiplegia of the infantile cerebral type. We are often asked for suggestions as to treatment in these defect

cases. If my neurological findings are substantiated it will be readily seen that at the present time we have no treatment. Our experience in the treatment of these defects would tend to substantiate our brain findings, for it is one of the most hopeless of tasks to teach one with a defect for music to sing, or one with a moral defect to be honest and truthful. However, this situation is not entirely hopeless. The psychoanalysts would suggest that these sadistic tendencies might be sublimated and carried over into useful fields. The sadist might be made a butcher or a surgeon. We know of one case of a feeble-minded boy with pyromaniac tendencies who was set to shoveling coal all day in the boiler house, and he has made the best stoker they ever had, doing twice as much work as any of the others.

The lesions commonly found in the infantile type are the agenesis, porencephaly, hydrocephaly, lobar and tuberous sclerosis, cysts, residuae of inflammations, hemorrhage, etc. At the present time there is no treatment for these conditions. Prevention is the only weapon we have to meet the situation with. Re-education thus far in the adult hemiplegias is not very hopeful. We have to depend too much upon our corticospinal tract in civilization, so that the older we get the more it acquires the habit of independence of the subcortical tract and the more useless the subcortical centers become to us, especially for fine coordinated movements, the hands in contrast to the feet, for instance.

With the anthropoid ape whose neurological reactions approach the nearest to man the motor cortical centers may be removed and if the animal is allowed to run free he will acquire no contractures. On the other hand, if he is given little freedom he acquires contracture closely resembling the contractures in the adult hemiplegics. The apes' neurological reactions more closely resemble those of man than they do those of the lower animals. Yet the difference is great enough in the greater importance of the cerebrum to man that the destruction of the cortex is a much more serious matter. Some of these cases might be prevented by taking more care of the mother during pregnancy, but the hereditary cases offer no such hope, as the causation lies further back. Each of the six autopsies I had at Vineland showed agenesis and anomalies of other organs, such as hypoplasia of cardio-vascular sys-

tem, supernumerary spleens, that is one to two extra spleen-like bodies about the size of peas or marbles, and anomalies of development of the genito-urinary system, etc.

The matter of the dependance of man on his cortex in contrast to the lower animals should receive more attention. Many schools for feeble-minded entirely disregard this factor and the children are put at craftsman's and other work requiring fine co-ordinated movements that would tax the energy of one with an intact nervous system, and I have seen serious outbreaks of hysteria and katatonia in predisposed feeble-minded caused by the severe exertion necessary for them to put forth to perform such fine movements with involved cortico-spinal tracts. These cases should all be seen and their work prescribed for them under consultation with a neurologist.

The records put out on these cases by some investigators as to their will power, as measured on the dynamometer, their vital capacity on the spirometer, etc., which in conjunction with their standing and sitting height, and called their vital index, also needs the censorship of a neurologist. It is quite likely that much of the automatism, etc., occurring in the feeble-minded, is due to destruction of these same pyramidal tracts and leaving the field open, uncontrolled to the reflex type of action of the subcortical centers.

If our findings in regard to these lesions are substantiated their significance and confirmation of our mental tests will materially help revolutionize the treatment of these cases in the courts, to say nothing of their bearing on questions of psychology, especially behaviorist and abnormal psychology, philosophy on the question of determinism, interaction between mind and body, etc., and economically.

It will enable us to substantiate most effectively our borderland cases of feeble-minded. It will help us readily to detect simulation. It will eliminate one of the latest theories that there is a unit character of mental defectiveness, though a predisposition to maldevelopment or degeneration of the nervous system might be inherited similar to the hereditary family muscle degenerations which are in certain forms accompanied by mental deterioration.

These findings are of the greatest importance to the business man who cannot afford to have sociopaths in his employment. There is no tell-

ing how many accidents on land and sea and in factories have been caused by this class of mental defectives. This class should be eliminated from the witness stand, juries and other responsible positions, where careful judgment is demanded.

The next and last question is, since we have no other treatment than prevention for these cases, what are we going to do with those we have. The only two suggestions thus far made have been segregation and sterilization. There is one other method which might be offered for discussion, because it is being so widely recommended in Germany in certain cases and is being carried out in America and in fact the whole civilized world for certain other conditions, and that is the legalization of abortions in these conditions, securely safe-guarded from abuse.

I cannot close this paper without acknowledging the great debt the laboratory owes to Chief Justice Olson, and also to his continued support and encouragement.

DISCUSSION.

Dr. McCready: I am very much interested in Dr. Hickson's paper and very much interested in his findings. They open up a new field in the study of the feeble-minded.

Dr. Grinker: Dr. Hickson's paper is most excellent but he has made one statement that, if true, is to me a revelation. It is somewhat in line of some observations that I have made at the Post-Graduate and at the Northwestern Medical School as well as at the Cook County Hospital, and that is, the negro who is subject to syphilis develops paresis and tabes rather rarely. General paralysis was almost anomalous. We know they are frequent, but on the whole, general paresis is not frequent. Now, here's a case where Dr. Hickson tells us something more in the same line; even feeble-mindedness is rare in the negro. I would like to know on what he bases his opinion. Has he had delinquents for examination? That is a question. Has he considered the environment? As regards another part of his paper—I agree in his statement that not every exaggeration of reflexes means organic disease and another point, we all know the difficulties we have to contend with in the examination of normal individuals. We know of the inability of relaxation. I must commend Dr. Hickson upon the excellency of his report.

THE RELATION OF ADENOIDS AND TONSILS TO MENTAL DEFICIENCY.

ARTHUR M. CORWIN, M. D.,

CHICAGO, ILL.

The case against the adenoids would seem to be sufficiently overwhelming, purely from the

physical side, to force a verdict for speedy and severe punishment without extenuation. Here it is in epitome:

Mutilation of good looks by the typical elements of the adenoid facies, first recognized and described some fifty years ago, though accurately portrayed in paintings and sculptures that have come down to us from ancient days—elongated, narrow face, open mouth and hanging prognathous under jaw; poorly developed upper maxilla with irregular, projecting teeth; nasal bridge often broad at its base though laterally pinched at the alae; naso-labial fold nearly obliterated; inner canthus of the eye drawn down, drooping lids and bleary, lusterless eyes; the whole expression one of dullness and vacuity.

Add to this unfortunate appearance chronic nasal catarrh, snuffles, serious deafness, otitis, mastoiditis, infected glands of the neck, retropharyngeal abscess, brain abscess, pharyngitis, thoracic deformity, pulmonary insufficiency, and increased tendency to tuberculosis; increased liability to acute infectious diseases; dyspepsia, embarrassed sleep, snoring, restlessness, suffocative night terrors and enuresis; under size and under weight; headache, dizziness, flat toneless voice; interference with the pronunciation of certain consonants, b substituted for m and d for n; reflex dry cough, especially at night; asthma, stuttering, stammering, laryngismus stridulous, chorea, convulsions and even symptomatic epilepsy.

As secondary to adenoid influence, also, have been chronicled various eye troubles, phlyctenular ulceration of the cornea, eczema of the cornea and retinal irritability. Whether these lesions were directly due to the presence of the glands as sources of infection and disturbed circulation, or indirect results of impaired general health does not so much matter. They have been cured by efficient removal of the offending glands. As interrupters of useful vision in children, such disorders are evident handicaps to mental development.

This array of possible and not uncommon physical sequelae would seem enough to guarantee early solicitous attention for all cases and radical treatment. For surely there is beside the morbid adenoid no other affection of childhood that is so common and so far-reaching in its malign in-

fluence upon comeliness, comfort, reliability and individual usefulness.

Recognizing that lymphatic tissue in the pharyngeal vault as well as between the faucial pillars is present in some degree in all persons, it is most important to know that symptomatic hypertrophy of adenoids probably occurs in twenty-five to thirty-five per cent (one-third) of all children between three and ten years of age. Some authorities have placed the percentage at seventy. This is much too high, except to include the mere existence of lymphoid tissue, not sufficiently enlarged or diseased to produce symptoms or require treatment.

But it is the direct and remote results of their abnormal presence upon mental and moral integrity that we are here counting as specially damning evidence. Among four hundred children at Bologna, Bonazzolo found that one hundred and forty-one displayed great lack of the power to concentrate attention, and therefore were backward students. In all but twenty-four of these, adenoids existed, and the twenty-four without them had nasal obstruction from some other cause. These children were neurasthenics. They are duplicated by the thousand in every school community as intellectual dwarfs.

In New York it was found that in a school population of 650,000, thirty per cent of the children were about two years behind their grades, and that ninety per cent of these were delinquent because of removable eye, ear, nose or throat lesions. Dr. Cronin found, in New York schools, one hundred and fifty marked defectives who were very backward in their studies and incorrigible in character; 137 of them had enlarged tonsils and adenoids. These were removed, and in six months they were re-examined. All were doing well in studies, and their characters had undergone marked improvement.

It has been estimated that forty thousand children annually in Minnesota have adenoids that retard them one year in work. One year's schooling in Minnesota costs the state twenty-five dollars per child. It therefore, costs Minnesota one million dollars extra per annum to educate these retarded children, an amount easily saved by a simple operation.

In the United States twenty million children constitute about twenty per cent of the entire population. Of these twenty million children, it

is estimated that seventy-five per cent suffer from some remediable defect, more or less formidable, six million of them having operable adenoids.

The lack of attention, aprosexia, and lowered power of memory, resulting from typical adenoid obstruction and irritation are responsible for an enormous amount of backward and deviate mental development originating in infancy. The child is unable to apply himself to his prescribed work. Thus handicapped he falls behind his fellows and fails to catch up; he is accounted a dunce; he is punished by his teachers and parents, ridiculed by his mates, and soon finds other matters to take his attention. He grows sullen, apathetic or mischievous, and is considered incorrigible and a nuisance. Truancy, a bad reputation in his neighborhood, the Juvenile Court, the reformatory and the prison record are easy sequences, as expressed in terse form by Judge Mack: "Straight road from adenoids to penitentiary." This is more than an occasional experience, especially among children of the poor.

In eighty-five to ninety per cent of all adenoids there is involvement of the Eustachian tubes, with deafness of varying degree, which tends to be progressive, even when not made irremediable by serious infection of the middle ear. "When deafness is marked before the child learns to talk, he remains a mute, or if he becomes deaf at five or six he is apt to forget how to talk." Helen Kellers, with Mrs. Sullivans as teachers, are rare combinations. The vast majority of these unfortunates are stunted in mind, not because of initial organic deficiency of brain cells, but because of faulty nutrition, on the one hand, and want of proper training, upon the other. It is common observation how quickly the loss, even a partial loss, of hearing changes the whole nature of an adult. Embarrassed by his inability to catch the trend of conversation, sensitive as to his affliction, many such individuals draw into the shell of silence, become despondent, isolate themselves, lose their desire to converse, and therefore lose one of the most powerful stimulants to mental growth. How much more the dwarfing of this sensory loss in childhood!

Blake, of Boston, found decided deafness in 39 out of 47 children examined, and after removal of adenoids 35 showed marked improvement in hearing. This is a fair sample of the experience of those who have had much personal op-

erative experience, or observed the results of others.

In this connection it is interesting that "ideoglossia (faulty subjective audition) due to biologic defects of the hearing word center without objective deafness may be closely simulated by peculiarities of speech dependent upon certain degrees of objective deafness." This fault of speech is "due to certain deafness from middle ear disease which prevents the child from hearing sounds, except those of a certain pitch and intensity," owing to lesions within the ear itself. Such are frequently due to post-pharyngeal lymphoid vegetations.

"On this account in some cases after adenoidec-tomy with real improvement of hearing, special training is required to educate the child out of the habit of wrongly interpreting what he hears."

In adults afflicted with chronic nasal obstruction, how frequent the vicious combination of headache, intranasal irritation, photophobia, infection, anemia, dyspepsia, insomnia, and symptoms of neurasthenia. Inability to attend to business or concentrate interest upon anything but the suffering involved has driven such patients to the verge of desperation. From this condition they have been rescued magically by appropriate surgical measures to re-establish ventilation and drainage and remove pressure.

Transfer this picture of nasal obstruction to the child with typical adenoid obstruction and is it any wonder that mental development is retarded and cerebral function morbidly disturbed, to say nothing of the body growth? "As the nasal blood supply is intimately related to that of the frontal lobe, the seat of mind, it is fair to say that any marked and chronic interference with the circulation of the nose will disturb that of the frontal brain." In other words, adenoid hypertrophy, obstruction and inflammatory swelling affect the brain circulation directly and indirectly lower its vitality through pulmonary insufficiency, anemia and impaired assimilation, excretion and metabolism.

From a modern point of view, hypertrophy of the lymphoid ring of the upper air passages, together with high arched palate, hypertrophy of the thymus with the associated deviation of other structures from the normal are considered among the stigmata of degeneracy and therefore to be referred to the same hereditary or acquired influ-

ence that results in hypoplasia in general. Certain it is that the hypoplastic infant is peculiarly afflicted with hyperplasia of the glands in question. "The hypoplastic child, fundamentally unstable and still further handicapped by enlarged tonsils and adenoids, with their attendant train of evils, is prone to respond nervously in an exaggerated degree to harmful environmental influences and needs careful study and attention to insure the advancement of which he is in a great number of instances capable."

Pistre defines "adenism" (a good term, by the way) as a morbid hyperplasia of the pharyngeal lymph tissue, an outward visible sign of a defensive struggle on the part of the organism against an hereditary or acquired intoxication operating at a very early stage of individual growth. Whether this intoxication is due to biologic changes in the blood induced by micro-organisms or to humoral alterations dependent upon disturbance of the balance of internal secretions of many glands is not settled. The last word has not begun to be spoken concerning the interrelation between the hypophysis, the adenoids, the tonsils, the thyroid, thymus and pineal glands, the sex organs and other structures. Their mysterious effect upon development and their relation to maldevelopment and the various signs of degeneracy are suggestive fields for research. How far are adenoids, according to Pistre, "one of the elements of a hypoplastic symptom-complex that in its completest form appears as the *maladies rachitiques*, involving bone, lymphoid structures, and later, the liver and spleen, and so forth?"

The removal of adenoids is not put forward as a panacea for all juvenile delinquency and retarded development. Retarded mentality and backward physical development undoubtedly exist without lymphoid abnormality, and gross adenism does exist in exceptional cases without stunting the brain. Even the laryngologist, perhaps somewhat obsessed with the importance of his own work as contributing to the comfort, comeliness and health of the race, must concede that an efficient adenectomy and the elimination of the tonsils as open doors to serious infections, never yet put brains into an idiot or wits into an imbecile, and never revolutionized the intellect and moral character of a moron.

But every laryngologist has frequently seen such operations very materially benefit the phys-

ical condition of these unfortunates by removing a potent cause of irritation and disease at a time of life and under morbid conditions when nervous instability is marked and reflex storms peculiarly common. Surgical relief should be given. These deficient children are entitled to any help which can be offered. Furthermore, hypertrophied and diseased tonsil tissue loses its power of resistance when thus degenerated and therefore becomes an increasingly ready portal for infections. The abolition of the tonsils in such conditions is, therefore, demanded.

But our plea today would emphasize the fact that a multitude of children, with normal brains and normal means for developing them, if denied proper surgical attention, will suffer deterioration of their normal gray matter, and therefore of mental force. And though they may not graduate into criminals or degenerates or public dependents, they will be seriously handicapped all their lives.

In all private and public institutions which exist for the care of defective children of various types, there should be a thorough investigation of each case, and where indicated the adenoids and tonsils should be properly removed by those properly trained for the work. All public school children should in every city be systematically inspected, but the recommendations for surgical interference followed out through the family practitioners, where there are such, or referred to specialists. That this would entail a large appropriation of public funds is true—much larger than is now appropriated by any city or commonwealth. Over two billion dollars is annually spent in the United States for police protection and the apprehension, conviction and incarceration of criminals. A goodly number of this class, as already suggested, is recruited from the adenized delinquent child. The family physician today may be fairly educated out of the attitude of discouraging surgical measures, prescribing internal absorbents (?) and assuring the parents that the condition will be outgrown. But he is so far the key to the situation and still so asleep to his obligations that he does not yet make every family into which he is called a mine of exploration, to the end that he may know the condition of all its members and so compass those hidden cases of adenism in the children of the house before they fall into the hands of the school inspector, who

by the way may not take the trouble to call him in on the case.

By so educating the general practitioner to look for these lesions, and the public to look for them and to court operative relief is the way *par excellence* by which to compass the problem before us—how shall we prevent the evil results of neglected adenism?

Proper medical inspection would not only save the state enormous expenditure of money, even with increased expenditure for inspection, but enormously increase the efficiency of our citizenship and enormously increase the total comfort and health of the community. Universal, uniform laws and methods of inspection should be adopted in all the states to overcome the present haphazard chaotic situation and insure the children a fair start in life. State supervision of medical inspection of schools should be made to enforce uniform laws conserving the mental and physical health of school children and insure economy, health, intelligence and the reduction of criminality.

In this connection it is a matter of satisfaction to know that the State Board of Administration in Illinois, upon the initiative of Governor Dunne, has established the department of Oto-laryngology, of which Dr. J. Z. Bergeron of this city is chief. His plans are already under way to organize and systematize the work of that department upon efficient lines, as applied to our state hospitals and reformatories.

25 East Washington Street.

DISCUSSION.

Dr. J. Z. Bergeron, Chicago: While it is distressing to have to say that to my knowledge not a state in the union has a thoroughly organized ear, nose and throat department, yet it is correspondingly gratifying to be able to say that the State of Illinois has in this matter taken the lead.

Some months ago, at the suggestion of a few friends, His Excellency the Governor, looked into the merits and advisability of developing such a department in the state and with the assistance of Dr. Zeller and the Board of Administration, the department was created of which I was made the head, but the administration was confronted with a serious proposition, that of no funds, as the legislature had adjourned when the department was created. I was then asked if I would develop the department under those circumstances. My reply was that I would providing I was allowed to work it out along scientific lines and absolutely free from politics in every sense

of the word. That they assured me and I must say that it has been absolutely free of political influence or not even a financial remuneration, any more than \$20.00 a visit to the institution; that means my time, taking my regular assistant with me and also an expert anesthetist when we commence to operate.

There are in the state institutions, including the one in Lincoln for the feeble-minded, between 2,500 and 3,000. I have examined 115 boys at the St. Charles Home for Boys and found 100 operative cases, such as tonsils, adenoids, septum, degenerated turbinated bodies and chronic mastoids; 15 were non-operative, in other words, about normal; 10 were found to have heart lesions and quite a number of cases of rheumatism which I am at present tabulating. I believe that the Board of Administration is finding its way to giving us the instruments that are absolutely needed for the operative work. They have had their troubles because of having had no appropriation for that purpose, but it seems they have found a way out of it. The last communication I received from them was that our instruments would be delivered in the very near future.

I found each time I visited the institution that the hospital cases were mostly of the upper air passages; namely, otitis media, tonsillitis, suppuration of the ethmoidal cells, etc., and quite a number of cases of rheumatism.

I want to thank the organization for the courtesies extended to me and hope to give a more complete report at the meeting next year.

Dr. Bliss: Just one thing in connection with this paper that I want to speak of. The very title of the paper implies a mental defect can be caused by adenoids and tonsils. I don't believe that. I believe that you may have retardation, you may have any amount of interference with the child's ability to meet social conditions, to meet his school and to meet life but not sufficient to cause actual mental defect. He may have had adenoids and been feeble-minded before, but I seriously question it. I don't know that the Doctor would make that statement.

THE RELATION OF THE EYES TO MENTAL DEFICIENCY.

OSCAR DODD, M. D.

CHICAGO, ILL.

Mental deficiency has been divided into two classes: The congenital and the acquired. Gross defects of the eyes often accompany the other stigmata which may be present in the first class (deficients from birth), but it is with the second division, those in which the arrest of mental development manifests itself during childhood and adolescence, that the eyes are most concerned.

Statistics do not help us much in determining

the effect of ocular defects on mental efficiency. While the proportion of children with defective vision has been shown to be from 19 per cent to 35 per cent in our schools, Ayers¹ in an exhaustive study found the proportion of eye defects as frequent in the bright pupils as in those classed as dull or backward. The explanation for this may be due to the difference in the nervous system; one child being predisposed to reflex disturbances and unable to bear the eye-strain while the nervous system of the other may not be affected.

Ocular defects may be causative factors in mental deficiency either because of poor vision or by the nervous strain and reflexes which are produced. The child with imperfect vision is unable to progress with his class-mates and is likely to be classed as dull and lazy, and, after falling behind in his work, becomes discouraged. Too frequently in the past the cause has not been discovered and the child has been classed as mentally unfit. Helen McMurchy² of Toronto reports the following case: A boy, aged 13 years, was still in his first reader. For seven years he had failed to get beyond that point until they saw fit to examine his eyes and found the vision very defective in both. With the correcting glasses he immediately began to improve and make good progress in his school work. It cost the city of Toronto seven years schooling before the cause of his mental deficiency was determined. This case is extreme, but every oculist has seen cases similar to the following, quoted from Swift: "Boy, age eleven years. Surroundings good, but so dull in school that he had fallen three years behind. Examination revealed mixed astigmatism. When this was corrected he began to improve physically, and two years later he had overtaken his former classmates.

Mental inefficiency may result from functional derangement occasioned by the continued effort of the brain to do its work under abnormal conditions. Since the brain is first of all a physical mechanism, and as such cannot be exempt from physical limitations, mental efficiency rests primarily upon a vigorous nervous system in a healthy environment. All questions of mental development are more or less dependent upon the process of learning, and of the senses through

which the mind receives impressions of external things the sight is one of the most important.

Edgar James Swift³ says: "During adolescence the demand for nerve force is great. Bodily changes are rapid and, with the best conditions, nerve centers are under heavy strain to supply needed energy. When work is improperly done it uses up a great deal of energy wastefully. Irritated centers send out abnormal impulses which result in deranged functional activity of the organs. The organs strive to do the work as it should be done and in their blind effort to preserve the integrity of their activity they call for more nerve energy; but the centers, because of their derangement, are able to give them only impaired impulses."

The nervous system of the growing child is not capable of sustaining a large amount of continued exertion so the constant strain of muscular exertion needed to overcome an uncorrected hyperopia, astigmatism or muscular insufficiency is followed by serious results. Muscles cannot act unceasingly, as they do under these conditions, without becoming exhausted in time. After a continuation of this unnatural effort the muscles finally lose their power of recuperation and pathologic results occur.

On account of the inability to see clearly in the distance myopia is more easily recognized and more frequently corrected than hyperopia, astigmatism and muscular insufficiency. The child with uncorrected myopia is debarred from much that leads to proper mental and physical development. He cannot enter into the sports and activities of his companions and consequently has a tendency to become despondent and morose. Such eyestrain reacts upon the moral nature and may have a great influence on the formation of the character and disposition.

I know of no more graphic description of the difficulties arising from myopia than Ex-President Roosevelt's account of his own experience. He writes: "Quite unknown to myself, I was, while a boy, under a hopeless disadvantage in studying nature. I was very near-sighted so that the only things I could study were those I ran against or stumbled over. One day they read an advertisement to me on a distant billboard and I then realized that something was the matter. I could not even see the letters. I

1. Psychological Clinic, 1909.

2. Trans. Amer. School Hygiene Assoc., Vol. III.

3. Swift: Mind in the Making, p. 137.

spoke of it to my father and soon after got my first pair of spectacles which literally opened a new world to me. I had no idea how beautiful the world was until I got those spectacles. The recollection of this gives me keen sympathy with those who are trying to remove the physical causes of deficiency in children, who are often unjustly blamed for being obstinate or mentally stupid."

In modern industrial evolution there has been a rapid increase in the use of the eyes for close work, and the eyes have not had time to adjust themselves to the new situation. In place of the short periods of close work interspersed with long intervals of use for distant vision we now have the reverse. Small defects which would not have occasioned any serious trouble with our fore-fathers in their limited use of the eyes will now cause serious difficulty.

An illustration of the serious handicap caused by a small error in the following case: A boy, aged ten years, was brought to me for examination of his eyes, the parents saying they were in despair about his school work as he could not read correctly. While reading he would repeat, mispronounce, and transpose words so that it was impossible for him to pass his grades. They had tried a private tutor but without benefit. I found his vision and muscular balance practically perfect. There was a small amount of manifest hyperopia, seemingly not enough to interfere with his work, but as the parents were anxious to do everything possible for him, I used a mydriatic and found the full amount of error to be + 1.25 D. Sph. both eyes. I gave him glasses and his parents reported that his difficulty in reading had at once disappeared and he was making good progress in his school work.

Reflex neuroses play an important part in mental hygiene and any condition which causes a nervous irritation should be relieved before it becomes permanently fixed and a serious menace to brain growth and development.

The neuroses which usually follow eye-strain are asthenopia, headache, migraine, gastric disturbance and facial chorea or habit spasm.

That headache in children is a serious handicap to mental work need not be mentioned, for, whether it takes the severe form accompanied by nausea and dizziness or is only a dull frontal or occipital pain with the hebetude attendant upon

it, work is practically impossible while it lasts. Risley in an analysis of about 1,000 cases of eye trouble found headache present in over 50 per cent. Other investigators have found a larger proportion. Many of these cases have perfect vision but the headache is caused by a hyperopia which is not manifest, or to a small amount of astigmatism. It is well to note in this connection that a small amount of astigmatism is frequently followed by more distress than a large amount, as with the small amount the ciliary muscle is constantly trying to procure clear vision by an irregular action, while with the large amount all attempts to see clearly are given up.

Every oculist is familiar with those cases of nervous dyspepsia lasting for years with no benefit from ordinary treatment, but which upon the correction of a small amount of astigmatism will at once disappear, to return when the use of glasses is discontinued.

Another frequent cause of discomfort which is not manifested by poor vision is muscular imbalance. A form of this is exophoria, an insufficiency of the internal recti muscles, making it difficult to hold the two eyes in line for distance and making close work almost impossible because of the difficulty in overcoming the added task of convergence and fusion. Relief from the strain is frequently obtained only when the effort to hold the objects together is given up, and a divergent squint occurs.

A more common condition is a tendency of the eyes to converge (esophoria), when the fusion of the images for the two eyes is maintained with continued effort either for distance or near. This trouble often accompanies latent hyperopia and the person will go through life suffering from headache, dizziness, and sometimes nausea until the changes of age make the hyperopia manifest, and with its correction the esophoria and distress accompanying it may be relieved.

Another class consists of cases in which one eye has a tendency to turn above the other (hyperphoria). Where there is a large amount the greatest effort will not bring the objects together and a diplopia will result or the head is tilted to bring the objects in line. Many of these cases seek relief by having their refractive error corrected by glasses but without benefit until the hyperphoria is corrected. Besides the pain and discomfort of this condition there is frequently

the added annoyance of an apparent torticollis.

These conditions—exophoria, esophoria and hyperphoria—are often overlooked in the ordinary examination of the eyes of school children.

Diseased conditions of the eyes are also responsible for a certain percentage of mental failure, especially when occurring in children of school age, making study impossible. One of the most common is phlyctenular ophthalmia with ulcerations of the cornea, leaving a scarred condition which renders the use of the eyes difficult all the remainder of life. Next in frequency is interstitial keratitis which usually requires treatment for a long period of time and leaves an impairment of vision. Another disease prevalent in certain localities is trachoma. Among our native population it had been largely eliminated until the influx of foreigners from Eastern and Southeastern Europe has filled our large cities with such an epidemic as to endanger all the pupils in the schools. Any person who has seen children afflicted with it will never forget the pitiable picture of the inflamed eyes, scarred lids and corneae.

In conclusion I would say that defects of the eyes are a cause of mental deficiency by preventing the child from receiving proper mental training. This interference may be due to imperfect vision but is just as frequently present when the vision is normal, but is maintained by the expenditure of a large amount of nerve force. The latter manifests itself either in the inability to study or concentrate the attention or by producing one of the reflex neuroses.

THE FEEBLE-MINDED: THEIR ENVIRONMENT AND SOCIAL RELATION.

H. C. KEHOE, M. D.

Superintendent Kentucky Institution for Feeble-Minded Children.

FRANKFORT, KY.

Statistics show that 50 per cent of children attending school are retardates, and evidently 25 per cent of these are really feeble-minded. How many feeble-minded there are who never reach the school room will never be known, but they certainly add their quota to the sum total of social derelicts who tend to leave their blight and contaminate the stream of human endeavor toward a higher civilization.

We are making very little progress toward re-

lieving this condition. Our celymosinary institutions, kept up by state aid, are but the dumping ground for children of genteel poverty and the substrata of the nether world of hopeless degenerates.

My experience as superintendent of a great state institution has taught me to only look in the faces of these unfortunates to determine whether they are the offspring of the alcoholics, syphilitics, cycotics or feeble-minded.

From no matter which of these parents the child comes into the world his or her tendencies without restraint tend toward a retrograde metamorphosis. No greater calamity could happen than to let the children of such parents go haphazard through life without custodial care and yet if they were all provided for it would impoverish the American nation.

Through eugenics we are beginning to see the light, and if taken hold of at once by the medical profession and all of those interested in stemming the tide of moral degeneracy yet four hundred years will be consumed before statistics will show much progress. This is lamentable but true.

We are now so busy contaminating the stream of human life that we will soon exist in a world *en masse* with feeble-minded, lunatic, cranks, neurasthenics, idiots, alcoholics, syphilitics, nerve-ends, and depraved and hopeless degenerates. To see an individual of natural poise, normal mind and healthy body will be the exception and not the rule. Yet we boast of our great educational institutions and take cognizance of a world dotted with churches whose very steeples pierce the heavens and we hear men prate about the world growing better. Ish ka bibble!

As Americans we boast of our patriotism and the wealth of a sun-kissed nation, while our markets groan beneath the burden of products sufficient to supply the nations of the world—yet as specimens of the *genus homo* we are becoming drivelling idiots and a nation of nincompoops.

If half as much attention was given to the procreation of the human family as is now given to the raising of stock, we would soon electrify the world. As it is the wires are crossed in the human dynamo and we are daily being shocked by short-circuits in the human laboratory.

No more delicate piece of mechanism ever existed than the human brain. Its ability to ap-

propriate materials from the human reservoir makes the mind the most complex unit in all the world, comparable only to the super-human and intangible, ergo God.

Society in reality is carrying a purposeless equation, the state a hopeless burden, and posterity an ever present menace so long as segregation and sterilization is not permitted as a means of mitigating the evil consequence of the feeble-minded.

Science is doing wonders for the mentally diseased as well as the psychoepileptic, and the psychoneurasthenic, but the deficiency of the feeble-minded is irreparable, and but little aided by the Binet-Simon system or any other known method.

When the feeble-minded are allowed to follow unhindered the trend of their minds, moral training becomes a plaything, and turpitude reigns supreme; the passions are allowed to run riot; the body politic is made the scape-goat in every community of an army of shiftless, senseless, soulless barnacles of human misfits destined in the end to become the submerged majority. Should we not take a new sounding of human life and plant buoys along life's highway? As it is we are only marking time, while the procession of derelicts are sowing seeds of degradation and shame that are filling our prisons with the abnormal and our state institutions with the insane and hopelessly defective.

It is a known fact that cancerous children are the offspring of tubercular parents and vice versa; that slobbering children, i. e., those with active salivary glands and defective minds are traceable to parents addicted to alcohol; that the defective with partial paralysis point unerringly to syphilitic progenitors; that the feeble-minded with the stooped shoulders and inherited dyscrasia are the children of like parents; while the blue-eyed, delicate, pale children with glandular enlargements and lymphatic conditions are from cycotic parents. And no matter what group they all tend toward an early demise, and 75 per cent die of tuberculosis in some form. It is appalling and the end is not yet.

Epileptics should have a special colony and not be associated with those of feeble mind, as the latter are great imitators and become affected by contagion or psychoepilepsy, while the former need special diet and entirely different treatment.

All feeble-minded are creatures of habit, and repetition fixes the habit, and punishment will not correct the conditions once established in their minds. They have no pride of character and no sense of shame. To do evil is paramount by inheritance, increased by environment. They follow the path of least resistance, and are powerless to prevent the things upon which their mind is bent. It seems characteristic for the mind to grow weaker and passions stronger, and thus they become a prey to all the unmentionable evils of lust that can be enumerated. This is an awful indictment, but it is the plain and unvarnished truth. As Shakespeare says, "I could a tale unfold," if permitted, that would blanch the cheek and paralyze the unsophisticated.

This paper might be regarded as pessimistic by many of my hearers, but understand I am a Democrat, and therefore optimistic most of the time.

There is another side to this subject and those who are "talking to the galleries" are often in the foot-lights, telling fairy-stories of wonderful accomplishments. The truth is a few sporadic cases are helped and a little progress made from individual effort, but all too costly for verification.

To educate the feeble-minded is a dreary waste of time and a woeful waste of money, as they will forget as much in recess as they are taught during class hours. They learn to read and write a little and then forget it all unless kept constantly repeating. Those who have mechanism can do better in manual training or basket making. Sustained effort is impossible and they fall 50 percent below normal in all work.

They are all gormandizers and can eat a yard of microbes a minute and live in an atmosphere surcharged with foul odors and carbon-dioxide. They are not susceptible to contagion and can swallow most poisons with impunity. They are forced into a bath and unalterably opposed to cleanliness, and nine-tenths of them are natural liars and born thieves. They are simply pawns in human form and subject always to a higher power of intellect.

'Tis said a fool and a cypher are never in danger, and these unfortunate creatures are certainly of the tribe of Ishmael and in an immaterial way will be cared for as was the Scion of Hager and Abraham of old, and this part we can

well leave to Him "who doeth all things well." But just so long as they infest the earth and are wont to multiply and replenish they should, in a material sense, be subject to custodial care, segregation and sterilization lest we be lost as a nation both mentally, physically, socially and financially.

A SUMMARY OF NERVOUS AND MENTAL FINDINGS IN FEEBLE-MINDED CHILDREN.

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A very noticeable feature of the feeble-minded as a class is the frequent indications of cerebral lesions and the diversity in their mode of manifestation. Practically all types exhibit along with their mental abnormalities varying degrees of impairment of sensory and motor functions.

Investigation of the nervous and mental characteristics of upwards of 1,000 cases has furnished interesting data, the more important of which will be briefly summarized.

Sensory Findings. Impairment of the special senses is of common occurrence. Of 200 cases where the intelligence of the children admitted allowed of examination, deficiency in the acuity of vision was demonstrated in 38 per cent, myopia and astigmatism being the most frequent abnormalities observed. Inequality in the size of the pupils was present in 5 per cent of cases, strabismus in 11 per cent, nystagmus in 5 per cent, subptosis and ptosis in 4 per cent. In 3 per cent of cases the reaction to light was sluggish. Total blindness is relatively rare, there being but 12 cases out of 1,600, 8 cases of which are due to ophthalmia neonatorum.

Auditory defect in varying degrees was present in 18 per cent of the above mentioned group. Six per cent of this number had a history of either recent or remote otitis media. There were 19 cases of deaf-mutism in 1,600 children.

Smell and taste, while somewhat blunted, were not found to show any marked deviation from the normal in the higher grades of mental enfeeblement. The lower grades in many instances display extreme defect of these senses. Satisfactory tests for taste and smell are exceedingly difficult to obtain.

The greater number of cases examined show a slight diminution in the cutaneous susceptibility to pain and tactile stimuli. Difficulty in accurate localization is a prominent finding. About 8 per cent of cases exhibit hypersensibility, especially to pain. In idiots and epileptics cutaneous analgesia is occasionally found. While many cases find it hard to recognize the finer grades of temperature, insensibility to extreme grades of heat and cold were seldom encountered except in idiots. Where stereognosis could be judged it was found to be invariably good.

Abnormalities or organic sensations are often met with. Absolute idiots will give no evidence of the presence of thirst or hunger. More prominent is the tendency to gluttony. Painful sensation associated with visceral disease is often not apparent. Sexual instincts are frequently abnormal, such abnormality being much more common in males.

Motor Findings. Evidence of motor defect is more prominent than sensory. Paralysis, partial or complete, is found distributed through all grades of mental defectives, being, as a rule, more frequent and severe in those of lower mentality. In our cases indications of infantile cerebral paralysis is found in 15 per cent of the inmate population, constituted as follows:

	Per cent.
Diplegia	68
Hemiplegia	25
Paraplegia and Monoplegia.....	7

Seven per cent of this group of paralytics have chronic hydrocephalus. In 6 per cent paralysis is residual in nature, function having been almost entirely restored. The paresis is, as a rule, spastic in character and is frequently accompanied by morbid involuntary movements, the most prominent of which are epileptic convulsions which occur in 42 per cent of paralytics. Less prominent are athetosis, choreiform movements and various forms of tremor which are met with in about 33 per cent of cases. Muscular incoordination is common in the majority of feeble-minded, especially marked in epileptics and paralytics.

The morbid condition of the central nervous system often manifests itself in over-action or weakness of the muscles without any definite paralysis. Muscular over-action is evident in about 14 per cent of the children. It manifests

itself in various forms of excessive movement, apparently voluntary in nature, also in the form of tics and automatic movements, such as body-swaying, nodding, tapping, rhythmical motion of the fingers, hands and arms, continuous humming or droning. There is hypertonus of the muscles with exaggeration of the deep reflexes. In contrast to this is found, with much less frequency and mostly in the more severe grades of mental defect, cases of deficient motor excitability. The movements are sluggish. General body balance is relaxed. There is hypo-tonus of the muscles with retarded reflexes.

Hyperextensibility of the joints, especially the metacarpophalangeal, is often met with, especially in cases of organic defect.

Epilepsy is a frequent complication of feeble-mindedness, this condition being found in 16 per cent of 1,600 cases. Of this number about 36 per cent show signs of organic disease. The grand mal type predominates to the extent of 95 per cent, the remaining 5 per cent being comprised by the petit mal and Jacksonian forms. Observation has led me to believe that every mental defective with an organic brain lesion is a potential epileptic.

Chorea is met with in both the acute and chronic forms in about 2 per cent of our cases. There are four cases which are fairly good examples of hypo-pituitarism, also a few cases representing the types of muscular dystrophies.

Abnormalities of speech are found to exist in about 65 per cent of feeble-minded children. The forms of abnormality are so diverse as not to permit of proper classification in a paper of this kind. Defects depending on the impairment of the motor speech apparatus, especially cortical anomalies, are most frequent, constituting about 62 per cent of this total. Such defect includes in their order of frequency stammering, slurring or stumbling over syllables, stuttering, aphonia, motor aphasia, and other unclassified forms of impairment. Intellectual speech defect is next in order of frequency and is met with in 35 per cent, being almost entirely limited to idiots and the lowest grades of imbeciles. This includes cases where speech is absent or rudimentary, being limited to noise-making, lalling, monosyllables, echolalia, and other varieties of psychic speech defect. Defect depending on imperfec-

tion of perception of sound or absolute deafness is found in about 3 per cent.

Mental Findings. The mental states in the feeble-minded are divisible into two chief groups.

1. Cases where the defect is mainly intellectual.

2. Cases where the moral defect is more prominent.

The second group is more frequently encountered as the intelligence level approaches the normal. The intellectual level of 295 admissions as graded by the Binet-Simon tests resulted in the following findings.

Fifty were found to be idiots, namely, to have exhibited a mental age of less than 2 years. The physical ages of this group varied from 3 to 31 years, the average age being $9\frac{1}{2}$ years. One hundred twenty-five comprised the imbecile group with an intelligence age varying from 2 to 8 years. The physical ages of this group ranged from 6 to 43 years, the average age being $12\text{-}\frac{3}{5}$ years. Eighty-four were found to be of the moron type, their intelligence age varying from 8 to 13 years. The physical ages in this group ranged from 11 to 48 years, the average age being $16\frac{1}{2}$ years. Considering the fact that an individual with a mental age of 8 to 13 years can frequently get along in the community and are the last to gravitate to an institution for the feeble-minded, the size of the moron group is significant of the numbers of this type at large.

Twenty-four of this series were classified as backward, their mental retardation not exceeding 3 years, while 11 graded up to the normal requirement of the tests. Of these two groups of cases a few members were epileptic, some displayed reactions pointing towards a progressive increase in their mental retardation while the majority showed varying degrees of incorrigibility and other evidences of feeble control of their moral reactions.

Defect in the power of attention is exceedingly common in the feeble-minded. This defect varies in intensity, depending as a rule on the severity of the mental deficiency. The profound idiot may be so markedly lacking in attention as to render any education a practical impossibility. The imbecile usually displays voluntary attention but the character of the same is unstable, it being easily gained but as easily distracted. The same tendency is displayed in the higher

grades, but in a milder form. The majority will show a childish interest in things spectacular but the impression fades rapidly.

As a result of the defect of attention all qualities depending on attention are correspondingly impaired. There is a lack of mental concentration. Comprehension poor. The stock of ideas is reduced and there is a lack in the power of association. Acquired memory is also of necessity impaired.

A constant feature in the feeble-minded is a lack of judgment and reasoning power. While the higher grades will at times show a capability of reaching simple conclusions, their judgment is, as a rule, too limited to permit of a proper appreciation of right or wrong, except as they associate certain acts with punishment. Coincident with the lack of common sense there is a deficiency of will-power with increased suggestibility.

The majority of cases are of indifferent temperament, showing a lack of constructive imagination with deficiency of the emotions. Sympathy and affection are for the most lacking—they are readily amused by the ridiculous but not so easily touched by the pathetic. On admission to the institution the majority show little evidence of homesickness, readily adjusting themselves to institution environment and often doing quite well at routine work under supervision.

Vicious environment is capable of developing immoral tendencies in most feeble-minded children. There are a great percentage of cases, however, that show an innate tendency to degenerate traits of character. The intellectual defect is not pronounced but the moral defect is prominent. The latter manifests itself in early incorrigible tendencies, such as dishonesty, truancy, "wanderlust," cruelty and destructiveness. Sex perversion is of common occurrence. In many instances there appears to be a total inability of comprehending social obligations. It is from this group of cases that the ranks of paupers, vagrants, thieves, prostitutes, sex perverts and the like are often recruited.

Insanity as a complication of mental deficiency is deserving of mention. C. B. Caldwell reports that 11 per cent of the population at Lincoln "gave undoubted insane reactions in one form or another." Thirty-five per cent of this total he includes under the head of "Terminal Dementia,"

a condition commonly found in the feeble-minded, especially the older patients. Dementia praecox is met with to a similar extent and is the chief active form of insanity encountered, the hebephrenic form predominating. Paranoid states comprise about 5 per cent of this group and involuntional states including melancholia, about 4 per cent. The remainder is constituted almost entirely by the demented and maniacal forms of epileptic insanity; rarely a case of juvenile paresis is met with.

Friday, July 17, 9 A. M., Hotel La Salle.

THE PHYSICAL CAUSE OF MENTAL DISEASE.

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WHITE OAKS FARM, MARION, OHIO.

There is at the present time considerable discussion as to whether mental diseases are caused by physical or psychical measures and as a corollary to this, whether mental diseases should be treated by physical or psychical methods.

My own belief is, that in all instances mental diseases are due to physical causes and should be met by physical measures. It is certainly true that in a certain few mental disturbances a physical base is conceded by all and as a result we no longer depend upon the mental aspects of the case.

In paresis, for instance, we no longer pay any attention to whether the patient imagines he or she is king, queen, or plain John Smith; whether he or she is worth millions or a pauper. We look rather for physical things, positive Wassermann reactions, change in the spinal fluid, eye symptoms, etc.

Dementia praecox likewise is rapidly falling into the physical disorders. Dr. Cotton last year at this same meeting showed by his stereopticon, that in the final stages at least there was a very appreciable physical change in the brain of the patient. And now the Abderhalden reaction is proving conclusively that there is a physical change in the sex organs and that the functions of the brain are disturbed because the sexual apparatus of the individual is physically disturbed.

Other disorders and other less well defined cases are just as physical as the ones mentioned above, but unfortunately the psychical side at-

traets so much attention that we lose sight of the physical.

It has been our custom in working with this class of cases to always look for physical derangements and to endeavor by physical means to change the mental state. We have oftentimes been startled by the results. And after going over many histories I feel justified in making the statement earlier given that mental disorders are usually, *if not always*, caused by physical disorders.

"As the proof of the pudding is in the eating thereof," I wish to cite a few cases. In explanation I wish to say that these cases were chosen from over 2,700 case histories of patients whom I have seen personally and have followed for some time. They are not sporadic cases but rather typical cases representing large classes and in all instances are only one of many presenting the same salient facts. They are all cases that have made complete recoveries.

They were chosen for this reason because since we had no autopsy findings to prove our diagnosis we were compelled to fall back upon therapeutic ones. Since the therapeutic measures were instituted to combat definite physical conditions and since these conditions disappeared under the measures instituted, it seems right to suppose that the physical findings were correctly diagnosed. And also since the mental conditions disappeared with the disappearance of the physical conditions, we feel that we have the right to assume that they were likewise due to the physical conditions.

The first case is that of a woman 38 years old. She had been sick several weeks when we first saw her. Her trouble was preceded by an attack of lagrippe which took a long recovery period. One day following her recovery from lagrippe and when she was not any too strong, a man grabbed her and kissed her. Immediately following this she became depressed, worried, said she had done wrong, etc. She laid great stress on having done wrong and talked constantly along a suspicious sexual line.

Physical examination showed her weight to be 81 pounds, when normally it should have been over a hundred. Her face was flushed, she had a slight fever, there was a marked amenorrhea with a small fibroid on the uterus; râles in the upper right lung, but no cough or sputum. There was also a very positive tuberculin reaction. Despite the sexual mental attitude, the case was pronounced tubercular and the brain findings were considered secondary to the other trouble. Under treatment she slowly gained in weight,

her fever subsided, she was able to take more exercise and gradually as her general physical health improved her mental attitude changed until she was quite her normal self.

At first glance to all intents and purposes this woman was a sexual melancholiac, but when all of the facts were worked out, and her physical condition taken into consideration, she proved to be simply a case of pulmonary tuberculosis *with mental complications*.

The second case was one which seemed to belong to those cases of excited mania sometimes called manic-depressive insanity, acute mania, and at other times just simply plain mania, there being no definite way that they can be classified.

She was 46 years old and 4 months before her attack began she commenced to have pain in her back. Next she became worried and feared that she was going insane and at last began to fight those about her. When first seen she was very wild. It was necessary to place restraint on her owing to the fact that she was tearing her teeth out of her mouth, already having pulled two loose, was pulling her hair out of her head and disfiguring herself in other ways. Under no circumstances would she keep her clothes on; she went through various sexual motions and was entirely disorganized mentally.

Physically she presented several characteristic features. She was constipated, the colon was filled with fecal material. The specific gravity of her urine was 1030. There was a slight trace of albumin present and large amounts of indican and calcium oxalate crystals. Her red blood corpuscle count was 6,208,000; the white count was 14,600; the hemaglobin was 70 per cent and the blood pressure 125.

Our decision was that she was a case of hypercythemia complicated with poor elimination. Active diuresis and catharsis was established. Hot baths and massages were given to reduce the blood stream. No attention was paid to the mental state; rest was insisted upon even under physical restraint; outdoor living arranged for as far as possible; careful nursing instituted and in less than 3 weeks the patient was in a normal condition again both mentally and physically. She had no recurrence in over a year.

This case is representative of probably the largest class of cases which we see; persons whose elimination is poor and whose blood making organs go on manufacturing blood corpuscles until the case is actually stuffed so full that the brain cannot work properly.

We have already shown in another article (Significance of a High Red Blood Corpusele Count), that 11 per cent of all of the cases presenting for treatment have an increased red blood corpuscle count and that most of them have a slight trace

of albumin and calcium oxalate crystals in the urine and we have also shown that the recovery of the case is exactly in proportion to the decrease in the red blood corpuscles and the diminution and disappearance of the calcium oxalate and the albumin from the urine.

The third case is much like the second in mental action. She was 32 years old and was perfectly well until an abortion was produced, when she lost all signs of mental equilibrium.

When first seen she talked constantly of babies, imagined that she was having the care of them, that everyone she was with was having them, that she was trying to steal them and that people were trying to take them away from her. At times she thought she was never going to have one and cried constantly for her husband to see if it were true. She seemed in every way to be entirely disturbed along this special line. She was very much emaciated, her legs and arms were retracted so that she could only move them slightly, they were painful in all parts, and she could scarcely stand the pressure of the bed clothes. Her red blood corpuscle count was 3,840,000, the white count 8,200; the hemoglobin 80 per cent and the blood pressure 130. Her urine was scanty, albumin was present and there were many pus cells. As there was frequent urination with marked stranguary she was catheterized and nearly a pint of pure pus was drained from the bladder. Cultures made from this showed both streptococci and staphylococci, the latter being predominant.

Supportive measures were commenced, careful nursing instituted, the bladder was catheterized four times a day, but never washed, baths and massages were given daily and staphylococcic vaccine injections given as her condition indicated. Slowly but surely the urine began to clear and after all traces of the pus had disappeared, her mentality changed, she cleared and has remained so now for nearly 2 years. There is no doubt that her trouble was due entirely to the staphylococcic infection, just as hundreds of others are.

Case four illustrates how easily one may be fooled by what seem to be real conditions. This patient was 24 years old. Had always been healthy, was married and at the proper time had a baby. On the third day after labor some kind friend told her that a baby had been found on a door step near by and they wondered if it belonged to her. Within a few hours after having been told this, the patient was entirely wild. She imagined that her child had been illegitimately born, that she had done wrong, that people were accusing her of being a bad woman, and so on.

When we saw her she talked of sexual matters constantly, masturbated, tried to have intercourse with all the men who came near her, would not wear clothing of any kind, made most dreadful exhibitions of herself and was as vile as anyone could possibly be. I thought that certainly she was a sexual case

and proceeded along these lines. Some past acts of hers had been questionable, and led to the fact that she might have some reason for worrying.

We made every effort to work her out by physical means but at the end of 5 months had made no headway whatever, only having gained a little on her physical condition, and made her a trifle more cleanly in her habits. At that time we were not doing Wassermann tests so I could not state positively regarding a syphilitic history. But the more I saw of her the more I was convinced that that was the cause of her trouble. At last, in desperation, I began mercury hypodermically. In less than 6 weeks she cleared and has remained clear ever since, nearly 3 years. Certainly she was a physical case caused by physical conditions.

The last case was what I considered a pure dementia praecox of the hebephrenic type. I might add that several other physicians who had seen her and who understood disorders of this kind, had made the same diagnosis. All of us were agreed that more than likely she was incurable.

She accused her mother of mistreating her, vacillated from religion to vileness and in every way showed all the features of a dementia praecox. At one time she became catatonic and remained in this condition for several days and nights. The usual line of treatments were tried without avail. At that time I did not know of Cotton's work, nor had I learned of the use of nuclein in these cases.

After several blood counts had been made and the case had been under observation some time, it was noticed by my assistants that she ran a leucocytosis which coincided with her better periods. It suddenly dawned upon us that Nature was trying to create a reaction to overcome the trouble. Knowing that nuclein caused a physiological leucocytosis it was given hypodermically. The patient made a fair reaction and the whites began to increase. On December 21 they stood at 6,600; on January 13 at 8,600; on February 3, 10,800; on February 24, 13,400. Her mental condition was then entirely changed. She was gaining in weight, her fever had subsided, she was going through all her functions normally. On March 17 the whites had drifted back to 8,000 and as her mental condition was absolutely clear she was allowed to go home. She has remained well ever since. Whatever her trouble was it must have been of a physical nature because it was conquered by physical measures entirely.

As stated earlier these cases are only typical of large classes. They are the kind one meets constantly in the day's work. They are the kind that go to make up the so-called "insane."

They were all brought for treatment because of psychical disturbances and they all recovered through physical means directed to physical causes. Those of us who had to treat them and who had to work out their problems and who

met their troubles face to face are confident that the psychical symptoms were merely side shows thrown in along with the big physical drama.

And since cases like these are constantly occurring and since we are constantly seeing other cases bud and bloom along the same lines, we feel that the physical side of all cases should be carefully gone into. It explains causes and in many instances, when the observer is keen enough, indicates treatment and brings results.

Of course, there are cases that cannot be explained along physical lines, but after working with the Wassermann test, after studying the blood and urine and physical findings of the patient, after following the literature regarding the results of the newer methods perfected by Abderhalden and other workers, and above all else after following the recent investigations of shock and anoci-association (Crile), showing the results of fear on the brain cells, I am convinced that wherever physical conditions are not shown to be the cause of psychical states, it is due to the weakness of the investigator and the immaturity of his methods rather than to the lacking of the physical cause.

Friday, July 17, 2 p. m., Hotel La Salle.

MENTAL STATES IN FAMOUS CHESS PLAYERS.

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Although the literature of chess is said to be greater than that of any other game or sport and extends into the ancient history of India, Persia and Arabia, and from medieval Europe until the present there has been little contributed on the psychological side from a modern standpoint. This is the more singular since the play of chess is so purely an intellectual function. Only one author on the subject could be found in a search of the Congressional and Surgeon General's Libraries, namely: Psychology of Chess, an article by Dr. Alfred Cleveland which appeared in the *Journal of Psychology* in 1907.

Binet published in 1894 a work on the Psychology of Calculators in which Goetz (a chess player) contributed a brief analysis of processes involved in playing chess. Among the non-medical writers is the wise discussion of

Benjamin Franklin (Morals of Chess) and the short keen analysis of Edgar Allen Poe. The former finds that foresight, caution and circumspection are the morals to be derived from such exercise, while Poe gives attention and deduction as chief requisites. The laity, too, have also their own ideas concerning the game, believing that its chief characteristics is merely dry, hard work, and that excessive application may wreck the mind. Medical men likewise are not entirely free of this superstition, as I know from personal experience and from the published statement of Dr. Tarrasch, medical man and master chess player who did not want to feel the responsibility of allowing Pillsbury to undergo the strain of giving one of his blindfold exhibitions when in Nuremberg, Tarrasch's home. But he hastily adds that mental application alone can not produce serious consequence.

When Pillsbury died insane in 1905 newspapers generally blamed the strain of his simultaneous and blindfold performances for causing the mental breakdown. Morphy, Schiffers and Stenitz are other instances of insanity occurring among noted exponents of the game. These examples were sufficient to create a desire to inquire into the relationship existing between the facts cited.

These investigations, together with the writer's acquaintance and experience with professional as well as amateur players may also afford additional evidence concerning the question of mental overwork as a cause of neurasthenic states.

It may clarify to discuss a little the quality of processes involved in chess play.

The mental qualities most used and generally admitted are perception, memory, analysis and a constructive imagination. To these must be added the so-called "position sense."

Cleveland defines the reasoning process as applied to chess in psychological terms as "A sequence of mental states due to shiftings of the focal point of attention, the associations working strictly within the limits imposed by the task or purpose." Memory is well developed in all first-class chess players. Dr. Tarrasch can remember the moves of most of his important games, as well as other matters of interest to him. Blackburne, the English champion, in 1899 reproduced from memory a game played by him in 1862. Morphy could make the moves of all the games played by

himself after he had chess maturity. He also knew four languages and could recite from memory nearly the whole of the Louisiana Law Code. He was a graduate in law before reaching twenty. Pillsbury, the late American champion was a brilliant player whose memory feats were remarkable. He easily could play twenty and more games simultaneously without sight of the boards. He often sandwiched in these exhibitions, several games of checkers, at the same time taking a hand at whist. If starting in the afternoon, such contests might be adjourned for dinner, after which they would proceed as if no interruption had occurred. In Philadelphia before starting a blindfold contest against twenty boards he was given thirty words to remember. At the end of the evening's entertainment he repeated accurately the words and then said them backwards.

Most master players can manage from four to eight boards blindfolded. Quickness of perception is called for especially in over-the-board simultaneous play. Players like Capa-Blanca will play and finish about thirty games in approximately three or four hours, *i. e.*, making close to a thousand moves at the rate of about five to eight moves per minute.

Morphy blindfolded beat the strongest teams of eight players of England and France successively, and with only one drawn game scored against him.

Attention is so necessary to good play that Poe complains that if it flag a little the result may be so injurious that the player affected may lose to one of lesser acumen. That is true, and as it varies in the individual from time to time, so does the fortunes of his contests. Attention is apt to be affected by fatigue, either from playing, or from other causes, or apparent inattention and consequent blunder may spring from a very excess of attention to one field of the board, or to one plan of procedure, to the exclusion of others. That is, a sort of fixed idea arises. The attention must be directed to following the goal idea. The latter is determined by the judgment of position and the powers of forming combinations. As Cleveland says, the logical type increases in proportion to knowledge and skill, and arrives at the type of the syllogism.

The position sense is the result of knowledge derived from experience and study. It is the organization of the relations of different units into

whole complexes. Generalization results, and more or less automatism takes place. This releases the attention from many details and makes playing far less laborious: "favoring short circuit processes" (Cleveland).

The position sense may be likened to the strategies of military science, while the mere combining power resembles tactics.

Blindfolded playing, without sight of figures or board is not so easy of analysis, probably because this feat is not accomplished exactly in the same manner by all. Some visualize almost entirely, others are said to have verbal symbols or auditors, while with Pillsbury, it was accomplished by calculation, a mere record. One man grasps this easier by being reminded that a game of chess is not a mere series of kaleidoscopic moves, but every successive position bears relationship to those preceding, and also to the hypothesized future situations. There is always a plan or theme, or a number of these (*leit motives*) serving as a constant hold for the memory, and the various figures are in logical and harmonious relationship to these and to each other, and in consequence it is not so difficult for one who grasps the central idea of the play, to reconstruct what figures should rightly stand in association with it. That is why it is easier to reproduce from memory a game of forty moves, than twenty chess problems of two moves each. For in the latter there are twenty separate and distinct themes. I am inclined to believe that most blindfolded players are calculators, and that this process is assisted considerably by a partial visualization. I doubt if any visuals see distinctly the entire board at one time. One does not in over-the-board practice. The vision is fixed on only several squares two to four at one time, while the other squares are in the peripheral field according to their distances. Personally I see a board slightly foreshortened, the far side tilted upward apparently about six inches, and about four squares with the figures can be seen distinctly at a given time. To differentiate the black from the white pieces requires a slight but distinct additional effort. But one recognizes, or rather knows the particular squares, and further orients himself by passing rapidly from one set of fields to the others. This, in my experience, assists and clarifies mere calculation.

Engrammes thus repeatedly stamped and re-

called, may be readily and quickly revived at will. But a complete automatism is never reached, for no two games or problems are ever just alike, and so new deductions and calculations must ever be made. Hence it is that a chess player with great theoretical knowledge may and will sooner or later slip backward in practical performance. Ability varies also with the individual's varying conditions, mental and physical. Thus, the character of chess play is often a subtle index of the individual's condition; of a variant condition perhaps not noticeable in the performance of routine duties, where knowledge previously acquired serves well enough. In this connection occurs a chess malady, seen normally in novices, frequently in amateurs, and occasionally in masters, called chess blindness, or what Dr. Tarrasch has humorously termed "Amaurosis Scacistica." It is a condition in which the mind unexpectedly blunders, and fails to take cognizance of the most obvious position. Its etiology is too various to enter into here. The duration may extend over but a single move.

The emotions enter not greatly into the game, except of the gentler sort. But temperament finds expression in style, as the open game, the close game, the attacking style, and the more prudent defending type. The pleasure of the game has been said to depend upon the instinct for combat. Poe ascribes it to a love of exercising talents for analyses, solving cryptograms, etc.

The chess player is the mental prototype of the athlete, and bears about the same relation to others in mental pursuits that the athlete does to the physical status and health of others. Both are specially trained and possess ability along certain lines, but it does not necessarily follow that there is a superiority in general health or greater success in affairs. In general I can not speak of any characteristics peculiar to master players.

As regards mental diseases the biographies and records show but four in the past quarter century having developed insanity. These are Schiffers, Pillsbury, Minkwitz and Steinitz. Minkwitz, a German, is said by Dr. Tarrasch to have had a bad inheritance, as his father was very eccentric, and Minkwitz would have become a lunatic in any calling. The diagnosis was primary hallucinatory insanity. Of Schiffers, a Russian, Dr. Tarrasch describes him as a versatile, well educated man full of humor, amiable and entertaining—

in short "ein Kerl wie Samm't und Seide, nur schade, dass er suff!" This he did with great consequence and developed an alcoholic psychosis. Steinitz, champion of the world for twenty years, died in 1899 of parietic dementia, but was over sixty years of age. Pillsbury died in 1906 of undoubted parietic dementia. He was doubtless well advanced in the disease during the Cambridge Springs Tournament in 1904. At that time he suffered from insomnia and restlessness. For the first time in his career he was not among the winners. But he had a spark of the old fire and ability when at the same tournament he beat Lasker, world's champion, then resident in America, and Pillsbury's chief rival. He had saved for a long time an original variation of the Queen's Gambit for a contest against Lasker. Tschigorin, another Russian chessmaster, died at fifty-eight, after a long illness of diabetes. But his chess powers were diminished, too, long before, from the free consumption of C_2H_5OH . This alcoholism in the two Russians can not be ascribed to a chess temperament, but to a national tendency.

The last case I have to cite is that of Paul Morphy, the most noted figure, and greatest chess player in history. He was born of well-to-do and cultured parents, in New Orleans, in the year 1837. His uncle and father taught him chess at a very early age. Lowenthal, the Hungarian master, visited New Orleans in 1850, and played three games with Morphy who was then not thirteen years of age. Morphy won two games and drew the other. He was never beaten, and after conquering the world of chess by visiting, and playing against all comers, both in America and Europe, issued a final challenge to give odds of pawn and move. No one raised the gauntlet and Morphy never played again, excepting a few games with personal friends.

His tournament and match games covered but a period of two years. He first won the New York tournament in 1857. He then went to France and England where he defeated in match play the strongest, such as Anderssen, the German champion, Lowenthal, and others. He had then just reached his majority. He is described as slight in figure, dark, but comely, and of possessing polished, pleasing and modest manners. He scorned professionalism in chess, considered himself but an amateur, and when there happened

to be a purse or prizes offered, always gave them away.

On returning home from Europe by way of New York he was received with honors by admirers, and presented by the president of the chess club, a handsome set of gold and silver chessmen. He created a scene, however, by objecting to the implication in the presentation speech, of the profession of chess. It was harmless and meant nothing in particular, but Morphy's sensitiveness was too great and as a result, the speaker retired in confusion. The chess pieces are at present in the Manhattan Chess Club, New York. This incident, I think, likely, the very first manifestation of the malady which later clouded his life. He accepted a contract for writing a series of articles for the *Herald*, at a salary of \$3,000 a year. He returned to New Orleans and attempted to practice law, his father's calling, but his chess reputation was greater than his legal, and the realization of the fact soon embittered him, and he could never be induced to play again in public. Then to make the bitter, gall, a young lady with whom he became enamored permitted the information to leak out that she could never marry a mere chess player.

He became more seclusive, and gradually developed delusions of persecution. His father being deceased, a brother-in-law was administrator of the estate and it was against him that Morphy suspicioned and then became convinced that his relative was stealing from the estate. As a matter of court record, however, everything on this score was in order. Morphy then became litigious and being learned in the law himself was able to create difficulties. He feared poisoning from the same source, and would eat nothing that his sister or mother did not prepare, and when a friend offered some sweets would not partake until the friend had first eaten of them. There is plenty of evidence to show that in other respects his mind was quite in order. He would go about the city alone, and was considered quite harmless, reticent, and perhaps eccentric. Mr. C. A. Buck of Kansas City has given a detailed account of Morphy's later days, and in it I can find no evidence pointing to a diagnosis of dementia praecox.

At one time his family proposed for his improvement placing him in a Catholic institu-

tion, but he argued his legal rights so clearly that the authorities were afraid to take action.

In 1882, after several futile attempts, he consented to permit Steinitz, then champion, to call, on condition that chess would not be mentioned. It was a poor meeting.

But there is evidence that through all these years he kept pace with the current affairs of chessdom, kept a board, and still liked chess. He played occasionally with his personal friend, Charles Maurian, and although these even ceased in the last few years, yet it is believed by those who knew him best that he never lost any in chess ability, nor did he show any dementia. He died suddenly in 1884, aged 47. Supposed cause was heart disease.

I have thought the diagnosis of his mental condition paranoia or paraphrenia.

In the foregoing histories there is nothing that one can hold chess responsible for.

Moreover the mental strain involved by tournament matches does not seem to produce neurasthenia or any of the psychoneuroses. Teichmann, Mieses, Kohn, Alapin, Lasker, Bardeleben and other professional players I have known or know of, do not appear or suffer from any such disorder. Yet tournament and match play contests commonly extend over a number of weeks, and often one such contest will closely succeed another. The strain, of course, is considerable and fatigue ensues but it is normal in character and the participants quickly resume their average tone. This evidence, therefore, tends to exclude over-work and mental application alone as the cause of the neurasthenia. It is more probable as Dejerine has so well argued that emotional influences of a depressive character must accompany the various mental acts to produce such a disorder.

450 Spitzer Building.

DISCUSSION.

Dr. Towne: I happened to have the good fortune to have spoken to Mr. Pillsbury about the mental processes he used in playing chess. He had used the imagery, visual method until he tried to play so many games. Then he found the visual method inadequate; he had also used a finger or hand movement and in playing chess developed a sense of position to such an extent that he was able to play 21 games at once. He also said he built the foundation of accurate memory on his childhood experience—his father had a paper and he took charge of the paper

route; he simply memorized the addresses of all the places where the papers were to be delivered.

Dr. Davis: I used to play chess in my young days when a student but one or two of my friends were compelled to leave school on account of chess. What affected me in the Doctor's paper is that he utterly disagrees with the idea that chess is a mental strain. I believe from a mental standpoint it is a beneficial thing to learn chess and to play it. I was also glad to hear that ordinary so-called mental fatigue has never produced neurosis.

CHAIRMAN: We are going to take 10 or 15 minutes recess and if the gentleman will kindly step into the adjoining room—smoking room—and Drs. C. E. Sidwell and Louis Smith, Chicago, will give a "Microscopical Demonstration."

DEMONSTRATION OF THE LIVING AND STAINED SPIROCHAETA PALLIDA.

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AND

LOUIS D. SMITH, M. D.,
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CHICAGO, ILL.

That the *Treponema pallida* is the cause of syphilis is an unquestioned fact established by its fulfilment of Koch's laws. It has been found in

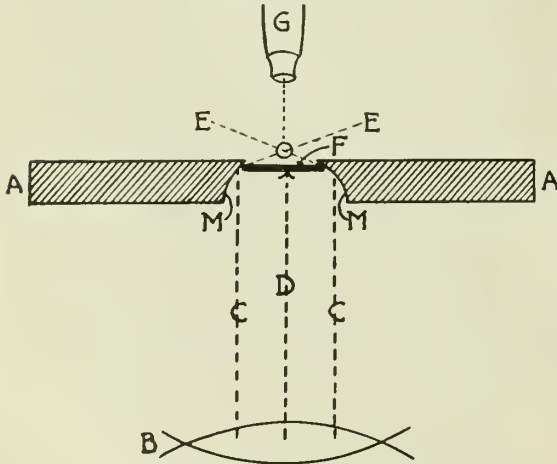


Fig. 1.—Longitudinal Section of Dark Field Slide. A, Slide; B, Mirror; D, Reflected Light Unable to Pass Through Dark Field; C, Light Reflected From Concave Mirror; F, Dark Field; G, Microscope; E, Point of Junction of Reflected Peripheral Rays.

every syphilitic lesion, produces an antibody, has been cultivated, and finally has reproduced the disease in experimental animals with recovery of the organism from the lesions produced. Again it has been recently established that so-called

parasyphilis is in reality syphilis. Graves has been able to produce syphilitic lesions in the testicle of the rabbit by inoculation with the blood of the tabetic and parietic, and Noguchi and Moore have been able to show the *Spirochaeta Pallida* in the parietic brain and tabetic cord.

The *Treponema pallida* discovered by Schaudinn in 1905 belongs to the Genus *Spirochaeta*, pathogenic to the higher animals, namely: *S. recurrent*; *S. pertenuis*; *S. microdentium*; *S. gallinarum*; and is an intermediate group between bacteria and protozoa.

The importance of the search for the identity of the pallida in the living state in the chancre to establish without doubt the nature of the infection, lies in the fact that with early recognition arises the possibility of early treatment; hence, we can most efficiently institute prophylactic treatment against the later nervous manifestations.

The method of choice for the discovery of the *Spirochaeta pallida* is with the dark field illuminator. This is a slide so constructed that only peripheral rays of sunlight, arc light, or in fact any strong white steady light such as the Nernst lamp furnishes, are able to be reflected above a dark field.

Briefly, the dark field illuminator consists of a perforated glass slide. The diameter of perforation on the under surface of the slide is greater than that of the upper surface. This beveled edge is concave and is mirrored. A disk or dark field, impervious to light, so completely fills the opening in the upper surface of the slide, that rays of light reflected from the mirror of the microscope are unable to pass directly up through the objective of the microscope; but peripheral rays of light, striking the concave mirror in the dark field slide, are reflected above the dark field or disk in such a manner that they converge about one millimeter above the upper surface of the slide. Any object placed where these rays of light converge, diverts them upward, so that some of the diverted rays pass up through the microscope.

STEPS IN THE SEARCH FOR THE LIVE SPIROCHAETA PALLIDA.

1. Remove the Abbé Condenser from the microscope.

2. With the No. 3 objective locate the etched ring on the upper surface of the dark field. (This is called "Centering").

3. Cleanse the lesion with sterile gauze or an applicator.

4. Irritate the base of the lesion with curette or applicator to cause flow of serum (avoid bleeding).

5. Collect the exuding serum with capillary pipette.

6. Blow small drop of clear serum on a clean cover slip which lies on a plain surface.

7. Upon this press a clean slide (about 1 mm. thick), making firm pressure to insure a thin even film.

8. Place several drops of cedar oil on the dark ground slide and upon this the film preparation, cover glass up, avoiding bubbles.

9. With the No. 7 or No. 6 objective search for the *Spirochaeta pallida*, which exhibits the following characteristics:

It is an extremely delicate organism about 6 to 20 microns long with about 6 to 12 regular, closely set spirals with tapering ends.

These coils persist even when the organism is at rest, thereby distinguishing it from other spirochaetae except *S. pertenuis* and *S. microdentium*.

The organisms are very actively motile, having three distinct motions, namely, forward and backward, rotary, bending and lashing. This motility is perhaps due to the interaction of a central contractile axis and its surrounding elastic pellicle. There are no flagellae nor undulating membranes.

The *Spirochaeta pallida* appears luminous throughout its entire length while in motion.

Other luminous bodies are leukocytes, erythrocytes, Mueller's blood dust, air bubbles and various bacteria; and these cause some confusion while searching for *Spirochaeta pallida*.

In preparing the lesion for examination it must be understood that any applied antiseptic or medication will interfere with the examination; and further, when the secondary manifestations appear the spirochaeta has already left for other fields, hence, will not be demonstrable.

(Caution). Material from these lesions is highly infectious.

DEMONSTRATION OF SPIROCHAETA PALLIDA IN TISSUE.

The impregnation of the *Spirochaeta pallida* in tissues with the silver salts is very satisfactory only that it requires days, sometimes weeks, to make a perfect specimen and for this reason it is impracticable. It is most valuable in postmortem work. This is a comparatively simple procedure and consists of the following steps according to Levaditi:*

1. Harden pieces of tissues one or two mm. thick in formalin 10 per cent for 24 hours.

2. Rinse in water, then immerse in 95 per cent alcohol for 24 hours.

3. Place in distilled water till it sinks.

4. Transfer to 3 per cent aqueous solution of silver nitrate in blue or amber bottle and kept in incubator 3 to 5 days at 38° C.

5. Wash in water.

6. Immerse in the following solution: Pyrogalllic acid, 2 to 4 gm.; formol, 5 c.c.; distilled water, 100 c.c. and kept in dark room at room temperature, seventy-two hours.

7. Wash in water again.

8. Embed in paraffin and cut, or freeze and cut.

The *Spirochaeta pallida* is stained black while the tissue stains mahogany color.

We find that hardening bits of tissue and placing them in 10 per cent silver nitrate in diffuse light gives practically the same results.

It is well to put several pieces of tissue through the solution at the same time, so that on sectioning and examination of one of these specimens, if the spirochaetae are poorly differentiated the other blocks of tissue can be kept in the stain till the spirochaetae are thoroughly impregnated.

DEMONSTRATION OF SPIROCHAETA PALLIDA BY JENNER'S STAIN.

1. Collect clear serum from the primary or secondary lesion and make a film on a clean slide.

2. Fix in absolute methyl alcohol one minute.

3. Immerse such slides in Jenner's stain made as follows:

Powdered Jenner's stain $\frac{1}{2}$ gm. to 100 c.c. of Merck's absolute methyl alcohol and keep covered air-tight and free from water for 5 to 10 minutes.

4. Wash thoroughly in distilled water.

5. Dry quickly in air or over heat.

*Pathological Technique. Mallory and Wright, P 420.

6. Examine with oil immersion.
7. The *Spirochaeta pallida* stains faint blue.

The specimens for Giemsa's stain are collected and fixed as above, but slides should be immersed in Giemsa's stain, one c.c. of stain and ten c.c. of distilled water, preferably for 24 hours; then wash and dry as above.

INDIA INK METHOD.

1. Collect a drop of clear serum from the lesion on a slide.
2. Place a drop of India ink "Chin Chin Liquid Pearl," or "Higgin's" ink on the slide and mix the serum and ink and spread in a thin film over a portion of the slide.
3. Dry in air and examine with oil immersion.
4. *Spirochaetae* and other bacteria are not stained but show up in a dark field of ink as bright shining spaces corresponding to the kind of bacteria.

CONCLUSIONS:

1. The dark field illuminator is without doubt the best method with which to make an early diagnosis of lues.
2. The silver nitrate stain has few faults except that it requires considerable time.
3. The Jenner and Giemsa stains are of little value so far as a positive diagnosis is concerned, because of the confusion caused by shreds of tissue resembling *Spirochaeta pallida* and the loss of that distinct spiral shape due to fixation.
4. The India ink method is interesting but has the same fault as the other stains. Cracks in the serum in film, shreds of tissue and fibres cause confusion in the search for the *Spirochaeta pallida*.

1433 North Claremont Avenue.
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THE PRINCIPLES AND TECHNIC OF THE LANGE GOLD COLLOID TEST.

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The year 1912 marked an epoch in syphilis of the cerebrospinal axis, when Swift and Ellis made known their autoserosalvarsan treatment, and incidentally directed more attention to spinal fluid analysis. The same year Carl Lange accidentally hit upon a new phenomenon exhibited by the

spinal fluid in syphilis, while working on the biochemical reactions of metal colloids and albumins first investigated by Zsigmondy in 1901. Before going into the technic of Lange's so-called gold colloid test, a few explanatory notes pertinent to the principle of the reaction will be of interest.

Prior to Zsigmondy's investigations it was known that electrolytes such as salt solution would coagulate out colloidal solutions of metals, and that this coagulation was dependent upon the concentration of the electrolytes. The colloids in reality act like ions, as we understand them in physical chemistry, being positively and negatively electrically charged, and hence, losing their charges when oppositely attracted are precipitated out. This physical phenomenon of "Aussflockung" is a quantitative one in that if the balance between the quantity of electrolytes and that of gold colloid required for the reaction is destroyed no "flaking out" occurs.

Zsigmondy discovered that albumin solutions inhibited the precipitation (Goldschutz) and he was able to determine the protective or inhibitive points (Goldzahl) for various proteids, briefly the number of milligrams of proteid just necessary to inhibit the precipitation of 5 c.c. of 1 per cent colloidal gold in the presence of 0.5 c.c. of 10 per cent NaCl solution. The Goldzahl is constant for each protein.

Lange found in working with the proteins of spinal fluid that excessive amounts in disease favored this precipitation and that this "flaking out" occurred within definite dilution limits that were practically specific for paresis and tabo-paresis and more or less so for cerebro-spinal syphilis.

The importance of the Lange test becomes evident when we realize that the only specific test we have for syphilitic involvement of the spinal fluid is the Wassermann reaction, and the Lange gold colloid test certainly offers corroborative evidence of syphilis and parasymphilis at least. Furthermore, like the Wassermann test, the reaction may antedate symptoms of paresis. It is true that heretofore the Phase 1 reaction of Nonne by half-saturation with ammonium sulphate has given evidence of pathological excess of globulin, but there was no distinction possible as to the causal agent, be it syphilis or any other disease. A reaction as the Lange is therefore certainly a de-

sirable addition to our analytical armamentarium as applied to the spinal fluid, especially so because of its simplicity.

If there be any difficulty encountered in the performance of the test, it can practically always be attributed to the preparation of the reagent. However, if the details are accurately and unqualifiedly executed there need be no failure.

The following lists the apparatus and materials required, and if details seem excessive it must be understood that everything, just as Lange discovered, was essential to the preparation of a perfect reagent.

4. Glassware: All glassware must be of Jena glass.

1. Beakers: 1,000 and 2,000 c.c.

3. Graduates: 25 and 1,000 c.c., accurately graduated.

4. Liebig condensers: all glass; connections may however be made with plain cork stoppers, but no rubber must be employed.

5. Test Tubes: 120x12 mm.

6. Pipettes: 1 c.c., 10 c.c. and 25 c.c., all accurately graduated.

The cleansing of the glassware is very important. The condensers are cleaned with steam and rinsed by the first 200 c.c. of the distillate, which is then discarded. The other receptacles are rinsed with strong HCl followed by distilled water and hot air sterilized for 30 minutes. The test tubes are cleaned each time by boiling in 10 per cent potassium bichromate solution and then in distilled water, after which they are kept sterile in a clean covered container. The pipettes are rinsed in distilled water, dried with alcohol and ether and sterilized in a pipette box.

B. Solutions:

1. Distilled water—Redistill freshly distilled water and collect in a sterile flask. The water must be used within two or three hours.

2. NaCl solution (0.4 per cent) should be freshly prepared for each test with Merck's C.P. NaCl.

3. Colloidal Gold Solution: Merck's reagents are used for all the ingredients of this solution.

Five hundred c.c. of the distilled water are heated slowly to 60 degrees C. in a sterile Jena beaker. When this temperature is attained add simultaneously 5 c.c. each of a 1 per cent aqueous solution gold chlorid (yellow crystals) and of a

2 per cent solution of potassium carbonate; mix immediately. At this stage, as quickly as possible and using extra burners, heat to 90 degrees C., but not exceeding 95 degrees C. or until bubbles appear. Turn out the flame immediately, and while briskly agitating add 5 c.c. of a 1 per cent aqueous solution of formalin. The previously clear, colorless solution of gold chlorid is at once reduced to the colloidal state with concomitant color changes.

When properly prepared the reagent exhibits, after numerous color changes, a brilliant red with an orange glint. The solution is absolutely transparent when viewed by either transmitted or reflected light. As such, when free from evaporation, it will keep indefinitely. If exhibiting any purple shades or fluorescence of the superficial layers, the preparation is at fault. As a standard for proper color comparison the following may be used:

10 c.c. N/10 NaOH.

1 c.c. congo red.

0.5 c.c. alcoholic alizarin solution.

For the test in collecting the spinal fluid a dry, sterile, absolutely clean needle free from rust must be used, and the fluid collected in clean dry sterilized tubes. Bloody or contaminated fluids must be rejected. Although best used when fresh, if sterile, it may be kept for some time on ice.

Technic of Test. Into the first of 11 tubes placed in a rack add exactly 1.8 c.c. of 0.4 per cent NaCl solution and to the remainder 1 c.c. each. To the first now add 0.2 c.c. spinal fluid, mixing thoroughly. Then transfer to the second tube 1 c.c. of the first mixture, and 1 c.c. of the resulting mixture in the second tube to the third, and so on including the tenth tube. This gives dilutions of 1-10, 1-20, 1-40, 1-80, 1-160, 1-320, 1-640, 1-1280, 1-2560, 1-5120.

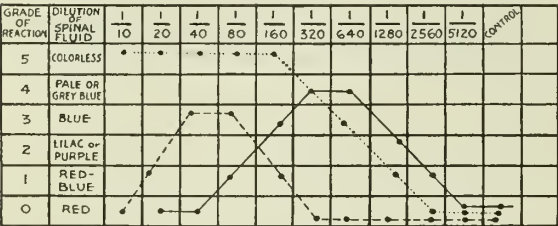
The eleventh tube is the control tube to be used either for the Nonne test according to Grulee and Moody, or merely as a color control as employed by Miller and Levy, when no spinal fluid is added. To each tube is now added quickly with rapid mixing 5 c.c. of the gold colloid reagent, omitting of course the eleventh tube if this is to be used for the Nonne test.

Reading of the Reaction. Interpretation is possible with experience almost at once. It is better, however, to wait ten to twelve hours, the

observation being made in natural light. A negative reaction is graded "O" and a maximum "5", the latter consisting in complete decolorization.

The reaction consists in the purely physical phenomenon of color changes due to alterations in the dispersion value of the colloidal gold. The reaction is dependent more on different qualitative arrangements of proteids rather than on true quantitative increase, since the strength of the reaction bears no constant relation to the amount of proteid present.

The following, a composite table, arranged from tables given by Miller and Levy, serves to illustrate typical reactions:



Key: - - - - - *Luetic zone*—confined to first four or five tubes. Flaking out usually greatest in dilutions of 1-40 to 1-160 and never exceeds a "4" reaction.

————— *Meningitic zone* with "Verschiebung nach oben" introduced by Lange. By this is meant a reaction maximum in the higher dilutions.

. *Paretic zone*—In this the first three to six tubes are characteristically of the "5" type.

In a review of the literature on this subject and from my own work, it is apparent that in taboparesis and paresis the findings are constant and conclusive, somewhat less so in tabes and cerebrospinal syphilis. It is therefore, of great importance, for by thus seeking the dispersion value of the protein substance in the spinal fluid in this simple manner, we can at once distinguish between syphilitic and non-syphilitic conditions.

Finally, since at the present time the gold colloid reagent already prepared can be readily obtained there should be no more difficulty involved in the performance of the Lange than in the Nonne test.

25 East Washington Street.

THE LANGE GOLD-SOL. TEST IN
GENERAL PARALYSIS.

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No attempt was made to test out this laboratory method as to its specific reaction in various mental and nervous diseases, as the work represented in this paper is based almost solely on the paretic suspects that have come into the Peoria State Hospital during the past five months.

Lange's test is based on the observation of Zsigmondy that certain albumins on contact with a solution of colloidal gold in the presence of an electrolite caused a clumping of the colloidal particles when the albumins were present in certain concentration producing various color changes. That less diluted solutions possessed a protecting power which prevented color reaction, and that the reaction was more marked at different dilutions with various albumins pointing toward a specificity of reaction.

The technic is as follows: Place in a test tube rack 10 test tubes. In each place 1 c.c. of a 0.4 per cent solution of sodium chloride. To the first add 0.8 c.c. more of the sodium chloride solution and 0.2 c.c. of the patient's fluid to be tested, which gives a dilution of 1 to 10 in the first tube. Mix thoroughly and remove 1 c.c., transferring this to the second tube, repeating this procedure throughout the series, which gives dilutions from 1 to 10 to 1/5120. After mixing in the 10th tube, discard 1 c.c. Having made the dilution, add 5 c.c. of the gold-sol. indicator to each tube and let stand 24 hours before reading the results. In marked cases of general paralysis a change is usually seen in a few minutes.

The color reaction ranges from red and red blue, red blue and blue red, violet and dark blue to light blue and clear, the color scale representing successive increase of reaction. The color changes are somewhat vague in some cases, the reaction not always being clear cut, so that slight differences in reading might occur with different individuals.

The greatest difficulty in this test is the production of the indicator, which should be clear and of a rich, yellowish cherry red color. It is prepared as follows:

To make 500 c.c. of indicator, take 500 c.c. of

double distilled water in a 1,500 c.c. Jena glass beaker and heat slowly over wire gauze to about 60 degrees C. When a few bubbles begin to start add while heating 5 c.c. of a 1 per cent solution of gold chloride and then follow quickly with 5 c.c. of a 2 per cent solution of potassium carbonate, or the potassium carbonate can be added to the distilled water before the heating is commenced. Increase the heat and heat rapidly to boiling. Remove the flame and add immediately 5 c.c. of a 1 per cent dilution of liquid formaldehydi and at once shake vigorously until the proper change of color comes, which takes from one-half to five minutes. The change should pass from a bluish red to amethyst, reddish pink and finally red with a slight yellowish tinge. A solution will usually keep only about four or five weeks at room temperature. The water used in making up the indicator must be double distilled, using Jena glass boiling flasks. The rest of the condensation apparatus may be constructed of common glass and ordinary corks, not rubber, are used in making connections. All glassware must be scrupulously clean, washing with soap, rinsing in 0.5 per cent solution of nitric acid, then washed in distilled water and dried with heat.

The presence of an excess of the proteins is responsible for a positive reaction in this test. The normal cerebrospinal fluid contains a very small amount of protein, which is considered by various capable authorities to be serum globulin, serum albumin, or to consist of both substances. Greenfield in a study of albumin estimation, using a modified Noguchi butyric acid test, estimated that in normal serums there was a precipitate equal to from 1 part in 8,000 to one part in 2,000.

Albumin should not be over 0.25 gram to the litre. In pathological conditions the proteins are increased, varying according to the nature of the inflammatory process. Schaller reports that in acute meningitis, serum albumin is increased, while in syphilitic affections the serum globulin is in excess,—attaining an amount equal to, or exceeding, that of the serum albumin present. The presence of a protein in pathological amounts may be determined by a number of methods, all much alike, with the exception of the Lange gold-sol. method. These methods include precipitation by hydrochloric acid, nitric acid, trichloroacetic acid, butyric acid, alcohol, magnesium sulphate,

zinc sulphate, ammonium sulphate, Esbach agent, etc. Of all the precipitation methods, those of Nonne-Apelt, Ross-Jones and Noguchi are the only ones used widely for clinical examinations of the cerebro-spinal fluid. These tests depend on albumin coagulation, while the Lange test depends on the reduction of a colloidal salt. As to specific reaction, Lange found that all cases of cerebro-spinal syphilis reacted in about the same dilutions. The reaction for general paralysis being typical, while the reaction in tabes was marked, but less characteristic than in general paralysis. These reactions were more marked in the lower dilutions, while in the non-specific cases of meningitis, the reaction was more marked in the higher dilutions.

Eieke reports on 323 cases. He found that in secondary syphilis the reaction occurred at dilutions of from 1-25 up to 1-130. The maximum always being between 1-40 and 1-80, the tint purple. General paralysis 1-10 to 1-640 white tint. Tubercular meningitis 1-320 to 1-1280 purple. Suppurative meningitis 1-160 to 1-2560, the color reaction running through all the tints down to white and back again to violet. The reaction was considered remarkably specific and extremely sensitive and reliable. A negative reaction was obtained in cholera, circular insanity, dementia praecox, arteriosclerotic dementia, epilepsy and neurasthenia. He also found the reaction is not so pronounced in tabes as in general paralysis and states that it resembles the ordinary type of syphilis.

Gulcke and Moody report 25 cases in the diagnosis of congenital syphilis. The reaction was most marked in dilution of 1-40 and 1-80, in cases of clinically congenital syphilis. Two cases of tubercular meningitis reacted most markedly in dilutions of 1-80 to 1-160 and 1-320. They suggested the test will probably prove valuable in the diagnosis of congenital syphilis, their reactions being considered quite specific.

Sippay and Moore reported 150 cases before the Section in Mental and Nervous Diseases at the Minneapolis meeting, June, 1913, stating that syphilitic cases reacted with maximum intensity in dilutions of 1-40 to 1-80, while the non-syphilitic cases reacted with maximum intensity around dilutions of 1-640. Dr. Gabby, working in the Psychopathic Institute at Kankakee, examined several hundred cases and reports reactions in

cases of dementia praecox, blue-red in color at dilutions of 1-40 to 1-80.

In the 50 cases examined at the Peoria State Hospital the gold-sol. test was positive in 40 cases of general paralysis, giving reaction of maximum intensity in dilution of 1-10 to 1-80. The Nonne-Apelt, Ross-Jones, Noguchi butyric acid test and the Wassermann reaction of cerebro-spinal fluid were also positive in all cases.

The Fehling reaction was absent in 80 per cent and the cell count averaged 33 cells per cubic millimeter. Ten other cases, including two cases of dementia praecox, two of arteriosclerotic brain disease and one each of cerebral hemorrhage, idiocy, brain tumor, manic-depressive psychosis, neurasthenia and not insane were negative. The cell count in these cases averaging 2.1 cells per cubic millimeter. The cerebrospinal fluid used for the tests should not be blood contaminated. In employing the Nonne-Apelt and Ross-Jones tests, Merck's neutral ammonium sulphate gives more accurate results. Of the two tests, in the Ross-Jones contact method the reading is more clear cut, and I believe is to be preferred to the Nonne-Apelt test. The gold solution will not keep indefinitely as formerly stated. Its preparation is the only difficult part of the technic, and double or triple distilled water and clean glassware will prevent many failures.

The solutions that are underheated in the preparation of the indicator do not pass through the color changes as rapidly as those that are brought to a higher temperature, requiring a longer period of agitation. The indicator is readily reduced by all the acids and is not reduced by the usual alkalis as ammonium and sodium hydrate, etc. Alkalis not only do not cause reduction, but also inhibit reduction in the presence of cerebrospinal fluids that have the power of reducing indicator when not contaminated with alkalis. Any contamination of reagents or glassware with acid or alkali will give incorrect readings. This reaction seems to be quite specific in the diagnosis of nervous and mental diseases. The specificity of the test showing a maximum reaction in the lesser dilutions in syphilitic affections and a maximum in the higher dilutions in the acute forms of meningitis, may be due to a difference in the type of increased protein present, as to whether it is serum albumin in the acute forms of meningitis or serum globulin in the syphilitic affections. I

consider this the best chemical test of the cerebro-spinal fluid in present use, but, considering the simplicity and reliability of the Nonne-Apelt or the Ross-Jones and the Noguchi butyric acid tests, and that in cases of general paralysis the cell count and Wassermann reaction of the cerebrospinal fluid are also made and are the most reliable findings in diagnosis, I do not believe that this test will ever come into very wide usage, except in very doubtful cases, when it may be used on account of its reputed specific action.

THE RELATION OF SYPHILIS TO THE PRODUCTION OF FEEBLE-MINDEDNESS.

GEO. BLISS, M. D.,
FT. WAYNE, IND.

For a good many years, statements have been made by social workers, philanthropists and physicians about the very large part syphilis has and is taking in causing mental defect. These statements have been growing steadily stronger and stronger until you often hear it said today that syphilis is the cause of 50 to 60 per cent of mental defect. These statements have often been made with very little real data for a basis, and this paper describes an attempt to get some real facts concerning this important subject.

We do know positively that syphilis is a very definite factor in producing insanity. Reasoning from analogy, it is fair to suppose that so common and widespread a disease is also a large factor in producing mental defect. Inasmuch as facts and not theories are what count in medical science, I determined to find out, if possible, what proportion of inmates in the institution at Fort Wayne, whose defect could not be accounted for, would show a positive Wassermann test. This at first seemed a much more easy task than we found it.

The law of Indiana provides that mentally defective children between the ages of six and sixteen may be admitted to our school upon application of parent or guardian and the certificate of a physician as to mental defect and freedom from communicable disease. A law also provides that mentally defective females between the ages of sixteen and forty-five may be committed by a

Judge of the Circuit Court after a proper hearing. No provision is made for males over sixteen.

In the first place, a definite cause other than syphilis can be determined in about 75 per cent of our inmates. These causes that we know are feeble-minded, epileptic, and insane parents or some near relative; in other words, heredity cases; and cases caused by disease, such as any form of meningitis, lesions from broken blood vessels, as in whooping cough or convulsions, and cases of definite injury at or soon after birth.

There are cases of direct infection among the adult female women committed to us by the courts, consequently we have left these women entirely out of the test. Excluding all those cases for the cause of whose mental defect we could more or less definitely account, and excluding all doubtful cases, there then remained 142 boys and 134 girls; 276 cases in all, for whose defect no definite cause could be assigned.

In determining the heredity side of the question, we took first, the case records as we have them on file at the school, going carefully over each of the 1,293 cases. We then went over each case with our record clerk, who has had charge of these case records for 12 years and knows the relatives of the children very thoroughly. In doing this we left out every case that was doubtful, and only took those cases where, so far as our records and observation go, the relatives were apparently normal people. These 276 cases were all admitted to the institution under 16 years of age, almost all of them under 12 years of age, so that their having personally acquired syphilis was *nearly* though not quite ruled out. On these 276 inmates a Wassermann blood test for syphilis was done by Dr. H. K. Langdon, of Indianapolis. The blood was taken under thoroughly aseptic conditions by my assistants at the school, Drs. Taylor and Hanaway, allowed to stand over night, and the serum sent to Dr. Langdon, by express. All the serum arrived in very fine condition and Dr. Langdon believes the tests to be as good ones and as accurate as can be made by this method.

These tests show that syphilis certainly does not seem to be responsible for 50 to 60 per cent of defect in the children of normal parents. This test is not broad enough nor based on enough data to be conclusive, but it certainly ought to

point the way to more careful and accurate statements by those interested in these subjects.

As a partial check on the results obtained above, we next tested 66 children for the Wassermann test just as they came in the divisions—that is without any reference to parentage, taking the youngest children we had; with the results shown in the lower table.

I will admit before someone in this assembly asks me, that this test is no gauge of whether the father of the child may not in the past have had syphilis, and I think a Wassermann test of a large number of fathers and mothers of these children would be of great value in these cases. Being obviously a very difficult, if not impossible thing to do, we have in these tests some gauge of the apparent number of mental defectives whose mother had an active case of syphilis at the birth of the child and these tests certainly do not show as large a prevalence of the disease in mental defectives as is commonly believed and stated.

I sincerely hope that this work may be only a beginning of some thorough studies of this important subject and that modern applied science may show us whether or not syphilis does play the large part ascribed to it in producing mental defect.

In conclusion, I wish to thank Dr. Langdon, who did the work without charge other than for materials, and to my assistant physicians at the school for their careful and painstaking work.

WASSERMANN TESTS.

GOOD PARENTAGE.														
4+		3+		2+		1+		Negative		Clinical Evidence		Total		
M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.
2	0	1	1	2	3	8	16	139	114	11	12	142	134	276
2	.	.	1	.	1	2	3	...	...	4	5	...	...	...
red			red		red	red	red			red	red			

WITHOUT REFERENCE TO PARENTAGE.

0	3	0	0	0	0	1	2	30	30	7	5	31	36	66
.	2	.	.	.	.	1	1	...	...	1	3	...	...	...
	red					red	red			red	red			

Red figures mean cases showing clinical evidence of syphilis.

CONTROL OF VENEREAL DISEASES.

W. A. EVANS, M. D.,
CHICAGO, ILL.

Mr. Chairman, Ladies and Gentlemen: I want to dispossess your minds of the idea that I have any paper to present and also of the idea that I am going to talk to you technically, for such is not my intention. The subject that I am an-

nounced to discuss is the control of venereal diseases. In my experience as health officer of this city, I had occasion to give a good deal of thought to the subject of control of venereal diseases. As a part of that duty, or at least as relating to that duty, I had the privilege of serving on the Vice Commission of the City of Chicago. I am going to speak to you from the standpoint of those two experiences, rather than from the medical standpoint.

I am going to speak to you from a sociological rather than from a medical standpoint. I have frequently heard our profession charged with taking two positions—that it seems to me they do not generally take, although there are members of the profession that do take these positions. The first of these I am going to state without arguing: The first of these positions that our profession is accused of holding, is that it is well for the physical welfare, particularly of the male, that he should be sexually uncontrolled. I do not believe that the profession, a majority of it or any organized part of it has ever taken that position, or that it has figured very largely in medical literature. All I am going to say on that question, is that I do not believe that it is the position of the medical profession.

Now, the second position: I have heard it said that the medical profession is in favor of a recognition of the professional prostitute and such machinery as has been developed in connection therewith, particularly that the medical profession is in favor of segregated districts and the regulation of such segregated districts, a part of the regulation to be medical inspection and certification of the prostitute. I do not believe that that is the position of the majority of the profession. It is the position of a very small minority I am willing to concede but not the majority. I have been present where the subject was discussed at medical meetings; first at the meeting of the public health association in 1909, in Milwaukee, where it was up for general discussion—there was no dissenting voice—everybody was agreed that segregation of vice was not a proper community procedure; that it did not control vice. The paper was presented by the then Surgeon General of the Army and by other speakers. It came up before the section of Preventive Medicine of the American Medical Association at the Los Angeles meeting. At that time, a man who had been

health commissioner of San Francisco spoke for segregation but with that exception the arguments that were offered were altogether against segregation. It came up again before the American Public Health Association in 1913. In that discussion there was no one who spoke in favor of segregation; therefore I believe we are justified in concluding as far as expressions have come from the organized profession we are not in favor of segregation. It is a subject we are going to discuss here.

The Health Departments are interested in the control of various forms of contagion. Rather strangely they have overlooked these kinds of contagion and possibly because they have not known just how to proceed. Now I am not arguing and am not taking any position on the general subject of sexual immorality. If we proceed against that which is called vice, then we are storming one of the bulwarks—we are striking at one of the places that is responsible for a great deal of venereal diseases. However, if we would gain in this trouble, we must go at it by gradual repression; we must concentrate our efforts on that form of commercialized prostitution that we commonly speak of as vice. The question comes as to how can that best be controlled. As is well known to the majority, European countries have, for a number of years, attempted to recognize vice as a condition, to limit its operation to certain parts of the city; to attempt by police control and by medical examination to limit the harm that is produced by it in those parts of the city. One of the things that were made perfectly clear to the vice commission was that efforts at segregation, at least in this part of the country, did not result in segregation; that there were more people plying their trade as prostitutes outside of the regular or so-called "red light" district than within that district, and to speak more specifically, more women registered with the police department in the Cottage Grove Avenue District here in Chicago, a resident district, than were registered in the "red light" district; or, in other words, that this Cottage Grove Avenue district, which was not a segregated district, actually had more women plying the trade of professional prostitutes than were to be found in the "red light" district. The same thing was found to be true though in lesser measure, in every part of the city.

I remember that the investigators who went to the Wilson avenue district had no difficulty whatsoever in uncovering a large number of homes, houses—that were occupied by women and used by women as houses of prostitution. Therefore, at least, insofar as this locality is concerned with governments, organized as our governments are, segregation does not segregate. It is possible that segregation does segregate under the conditions that prevail in Japan, that I am not in a position to speak of. With the absolute power that they have it is possible they can accomplish results that we do not under the circumstances that prevail in American cities.

Probably you are more interested in the proposition that regulation regulates. It has been assumed that vice having been segregated it would be possible to regulate the people who are there and the practices that are there. The fundamental law of every state declares no compromise with vice whatsoever and consequently the difference that exists between the standard that is written in the law and the standard of human behavior. There has grown up a regulation by rule, the rule often directly contradictory to the law. That was true here in Chicago—the state law and the city law. The police department passed rules that were directly contradictory to the state law but were more in keeping with the public sentiment as it existed. But these rules did not even serve to regulate. It was not at all difficult to uncover the fact that the police regulation did not regulate.

One phase of this regulation is the medical examination. I do not believe I will take time arguing to you that a medical examination with its certificate cannot be made to deliver the goods that, in some quarters at least, it is thought to deliver; that is to say, that it cannot be a guarantee of safety against venereal diseases. In the first place there arises the difficulty in the administration of the medical examination and certification. I have now in my possession certificates signed by physicians with the name of the individual left blank. These certificates taken from a stack of certificates found in the office of a house of prostitution. The certificates was to the effect that the woman had been examined and found to be free from disease, all duly signed, all the madam had to do was to issue a certificate to the girl. Of course, that is one of the faults of

administration. The examination, which is made for 50 cents or \$1.00, could not possibly be complete enough to show there is no venereal disease and no one could certify that a person found free of the disease would be free of it in the interval between the examinations. The examination could not possibly be complete enough to determine the facts that are certified to. It would not be possible to make an examination that would determine whether the woman was syphilitic or whether she had gonorrheal infection. Then there arises another difficulty, that no one could certify that the woman was free from venereal diseases, at least free from venereal diseases in a contagious stage, and that was the statement that was borne on the certificate; so that we found that medical examination did not or was not a feasible procedure. There is no place where a woman having venereal disease is so potential and harmful as in this place where the waters meet—as in a “red light” district—the parts of the country where people come in large numbers. We have not any facilities here—there is not adequate facility anywhere in this country for the treatment of the people who have venereal disease. The women who have venereal disease and the men who have it, taken as a class, are not profitable. In that particular work, the matter of making a living, they have got to get back to work as quickly as possible and that means that they will refrain from work and hold themselves under treatment until the time arrives when they do not give expression to the danger. They will take treatment for syphilis just long enough to remove the signs of danger, to take down the warning card, but not long enough to remove the danger itself. Where we have no proper hospital facilities these people get right back in the places where they can earn a living. The great advantage of doing away with the “red light” district is that it destroys the advertising facilities of houses of prostitution and in that we gain.

I believe that I have about occupied the time that I am allowed to occupy and I am going to close with this point: When you do away with a “red light” district you don't suppress prostitution; you don't bring about sexual morality—you simply step from something that was very bad to something that is not quite so bad. The danger is that as time goes on, people will forget the very great objections to a “red light” district,

a segregated district, whereas the objections to a plan that has superseded it will be more and more in evidence and therefore in time, they may think that they have conditions that are not as good as the conditions that they have left, the conditions that prevailed under the old plan. It is somewhat objectionable to have an increase in the number of houses of prostitution situated in the residence district. We are liable to have objections to that condition of affairs, magnified in our minds as time goes on. Time will serve to minimize the objections that prevail under the old system.

Now, we gain a very great deal when we disperse the "red light" district because we lose cohesiveness. A "red light" district brings together the people that operate therein; it forms bonds between them that are exceedingly powerful in political circles. It makes them to work together with a degree of effectiveness that is not possible under the system that supersedes it. Again, there is of course, objection to having these houses in our neighborhood, but we must not forget this—that every objection is a source of strength in dealing with the solution. The source of strength from their standpoint under the old plan was that the neighbors were tolerant; that there was no objections raised to the persons in the houses of prostitution and to the practices that were there known to prevail. Such objection was so weak that it was ineffective, but it was not true. If we set houses down in a residence surrounding, every neighbor becomes a scout—a scout first to detect the location of such houses, a scout to determine the circumstances and acts and occurrences that can be used as a means of routing such houses out. So that houses located in a residence district never could come to achieve the advertising possibilities that constitute the resources of the house in the "red light" district. Some of the old "red light" districts were known from Maine to California. There are no such advertising facilities of spreading information under the conditions that now prevail because the house itself, its persons and everything connected therewith must be kept secret. So we must not lose sight of the fact that we have not abolished the "red light" district; that we have done away with the commercialized vice; we have not suppressed venereal disease, but we have taken a step forward, and I

believe one that is approved by the medical profession. I want to say that venereal disease as a health department problem is receiving attention. For about a year and a half the city of New York has been classifying venereal disease in any of its forms with contagious diseases and they are proceeding with it along the same lines as in the control of smallpox, scarlet fever, etc. We are not launching something new. New York has had experience now for a year and a half and, as I understand, it is getting along very satisfactorily. They have as many as 2,500 cases reported in a single year. They are simply trying to gain data by the study of which they can formulate the natural next step.

TECHNIC FOR MIXING MATERIALS IN THE WASSERMANN TEST BY THE DROP METHOD.

W. T. MEFFORD, M. D.,
CHICAGO, ILL.

Before mixing materials in the test tube, one should be assured of the proper working strength of the hemolytic system, as it is of the utmost importance in the Wassermann test to have the hemolytic system working properly. The hemolytic system consists of complement, amboceptor and sheep's blood, combined as follows:

Into a small test tube put 10 drops of physiologic solution; to this add one drop of properly diluted amboceptor, one capillary drop of complement and one drop of a 50 per cent suspension of washed sheep's corpuscles, dropped from an ordinary dropper or a 5 c.c. pipette. Shake the test tube thoroughly and place in the incubator at 37 degrees C. and watch carefully to note the time in which the hemolytic system works. I prefer the hemolytic system to work in not less than seven minutes or more than twelve minutes. If the corpuscles are hemolysed in less than seven minutes, it is working too strong and more physiologic salt solution should be added to the diluted amboceptor, or a larger amount of blood may be used; either of these methods will correct the working strength of the hemolytic system. Again, if it takes a longer time than twelve minutes for the corpuscles to hemolyse it is working too slowly. In this event it is best to strengthen the amboceptor by a fraction of a drop of amboceptor, which is done by taking one drop of am-

boceptor and adding to it from three to five drops of physiologic salt solution, then adding one drop of this dilution to the already diluted amboceptor, or by using a smaller amount of sheep's corpuscles; either of these methods will increase the working strength of the hemolytic system.

I adjust my amboceptor and corpuscles to work to the capillary drop of complement, because of the fact that the complement is the material that we are generally short on.

It occasionally happens when using a weak or deteriorated complement that incubating at 37 degrees C. for 30 minutes will still further weaken this complement. When working with such a complement I advise to first incubate the complement in the salt solution for 20 or 30 minutes after which add the properly diluted amboceptor and corpuscles and observe the time of hemolysis after these materials are added.

To take the blood, I used a Wassermann laboratory blood taker. First tie a rubber constrictor or bandage above the elbow to distend the vein at the elbow. If the vein is not sufficiently distended a few backward and forward motions of the arm will distend the vein more. Cleanse the skin over the vein at the elbow with alcohol. Have the needle thoroughly clean, but just before inserting the needle put it through an alcohol flame. Insert the needle in the course or direction of the vein, with the bevelled point out or upward. As the needle enters the vein, make suction on the mouth-piece of the blood taker. After taking the amount of blood required, before withdrawing the needle, untie the constrictor, make pressure over where the needle enters the vein and withdraw the needle, continuing to make pressure over the vein for a short time after the needle is withdrawn to avoid a hematoma. Dress the puncture with iodine.

Remove the needle from the blood taker and immediately empty the blood into a large size test tube ($\frac{3}{4}$ in. x 6 in.) by blowing through the blood taker. Leave the test tube stand for ten or fifteen minutes; as a rule by this time the blood has clotted. Now pass a small sterile wire between the test tube and blood; this is called breaking the clot. Lay the test tube on side for five or six hours at room temperature, until the serum separates, then pipette or pour off the serum, as the serum is all that is required in the Wassermann test. If a small amount of blood

comes off with the serum, one can either centrifuge out the corpuscles or place it in the ice box over night and again pipette or pour off the serum. Inactivate the serum at 56 degrees C. for thirty minutes. This is to kill the complement and improves the working qualities of the serum. If one is in a great hurry for the test, he can defibrinate the blood as soon as drawn and centrifuge off the serum immediately.

The small sized Wassermann laboratory blood taker holds 15 c.c.; the large size holds 30 c.c. I usually take 10 or 15 c.c. of blood as one can take off the serum better; this is especially the case with beginners. By taking 10 or 15 c.c. of blood if one gets a strong positive, or a good negative, these can be used for controls. My long experience teaches me that one cannot depend upon a one-time reaction. I always put through a second or confirmative test of the first, if the second does not confirm the first, I frequently have to put the same serum through many times before arriving at a correct interpretation of the reaction and for this reason I prefer a larger amount of serum. One can take the blood by inserting a large hypodermic or antitoxin needle into the vein, first tying a constrictor above the elbow after the arm has been prepared as above directed for taking blood with a Wassermann laboratory blood taker. Let the blood flow directly into a test tube or small bottle and follow above directions for taking off the serum. One can take blood in antitoxin or large hypodermic syringe. Some prefer to take the blood from the lobe of the ear or tip of the finger in a Wright's capsule. I do not recommend this method of taking blood for the Wassermann test, as one seldom gets enough serum by this method to do a correct test. The time to take blood: I prefer to take the blood early in the morning before breakfast, or just before the noon or evening meal. If you take the blood before the meals, you avoid an excess of chyle; chyle in serum causes rapid deterioration and will, to some extent, bind complement. One can use the same materials for testing the spinal fluid. It is my custom in testing the spinal fluid to use both an active and inactivated fluid. To take the spinal fluid, use a larger and longer needle. I usually use for this purpose a number 18 size needle from four to five inches long, with a rather short point. These needles are now made with a plunger or stylet in the needle

that the blood may not be so liable to mix with the spinal fluid.

As you can now purchase in the market standardized materials for making the Wassermann test, and as the working strength of these materials is approximately given it is rather easy to mix materials in the test tube. The test tube should be thoroughly cleansed and sterilized. I use a test tube 11 or 12 mm. in diameter by 100 mm. long, or (7/16 in. in diameter by 4 in. long). For all materials, except the complement and corpuscles, I use a pipette made from a thin wall, 7 or 8 mm. diameter glass tubing, drawn to 2 mm. Cut small end of pipette square across. I use a teat or blind nipple on these pipettes, holding them horizontally in dropping materials in test tube. By this method it is the weight that determines the amount of material

Third, one drop of alcoholic luetic liver extract in test tubes, 3, 5, 7, etc. *Fourth*, one drop of known negative serum in test tubes 3 and 4. *Fifth*, one drop of known positive serum in test tubes 5 and 6. *Sixth*, one drop of serum to be tested in test tubes 7 and 8. *Seventh*, one capillary drop of complement or Guinea pig serum in test tubes 1, 3, 4, 5, 6, 7 and 8. *Eighth*, incubate 30 minutes at 37 degrees C. *Ninth*, after incubating 30 minutes, add one drop properly diluted amboceptor in each test tube. *Tenth*, one drop (dropped from a 5 e.c. pipette or ordinary dropper) of 50 per cent washed sheep's corpuscles in each test tube. *Eleventh*, return to the incubator and incubate 15 to 30 minutes at 37 degrees C. Usually the test has worked in this time. If more than one serum is to be tested, one can add as many sera

CHART FOR MIXING MATERIALS IN THE WASSERMANN TEST.

W. T. MEEFFORD, M. D.

Steps—	1	2	3	4	5	6	7	8	9	10		
Materials and Names of Individual's Serum—	Number of Test Tubes.	Ten Drops of Physiologic Salt Solution from a 5 C. C. Pipet or Ordinary Dropper in Each Test Tube.	One Drop Luetic Liver Extract in Test Tubes 3, 5 & 7.	One Drop of Known Negative Serum in Test Tubes 3 and 4.	One Drop of Known Positive Serum in Test Tubes 5 and 6.	One Drop of the Serum to Be Tested in Tubes 7 and 8.	One Capillary Drop of Complement or Guinea Pig Serum in Test Tubes 1, 3, 4, 5, 6, 7, 8.	Incubate 30 minutes at 37° C.	After Incubating Add 1 Drop Properly Diluted Amboceptor to Each Test Tube.	One Drop from a 5 C. C. Pipet or Ordinary Dropper of Washed Sheep Corpuscles in Each Test Tube.	Return to Incubator Until Test Works.	Note results.
Hemolytic system.....	1	1	0	0	0	0	1	Incubate 30 minutes at 37° C.	1	1	Return to Incubator Until Test Works.	Note results.
Amboceptor and corpuscles.	2	1	0	0	0	0	0		1	1		
Negative control	3	1	1	1	0	0	1		1	1		
	4	1	0	1	0	0	1		1	1		
Positive control	5	1	1	0	1	0	1		1	1		
	6	1	0	0	1	0	1		1	1		
John Smith or	7	1	1	0	0	1	1		1	1		
Serum to be tested	8	1	0	0	0	1	1		1	1		

Shake tubes after adding each material.

Materials at head of column go in such tubes as are marked (1) in chart. Materials at head of column do not go in such tubes as are marked (0) in chart.

in each test tube. For the complement I use a capillary drop, for the sheep's corpuscles I use 5 e.c. pipette or ordinary dropper. I standardize my alcoholic luetic liver extract to work from this 2 m.m. diameter dropper or pipette. I also dilute my amboceptor to work from this same sized dropper. From my experience I have found the 2 mm. diameter drops the proper amount of serum. Test tubes should be thoroughly shaken each time after materials are added.

For mixing materials in test tube: *First*, number the test tubes 1, 2, 3, 4, etc., with a glass-marking pencil. *Second*, put in each test tube 10 drops of physiologic salt solution, dropped from a 5 e.c. pipette or ordinary dropping bottle.

as he wishes, using the above controls for the whole test. Tube one, is the same as the hemolytic system and is the control showing that the materials are working properly. Tube two does not contain any complement and is a control that there is nothing in the amboceptor or corpuscles to cause hemolysis. It is also a comparison for the strongest positive reaction in the Wassermann test. By comparison of the drop method and this proportion of materials with the regular Wassermann method of mixing materials, I find the drop method correct and it will save one much time and material.

The materials required in the Wassermann test besides the laboratory glassware, etc., are al-

cohesive luetic liver extract, sheep-rabbit amboceptor, complement or Guinea pig serum, sheep's blood, known positive and negative sera for control and normal salt solution.

One must make a chart and write the names of the individual whose serum is to be tested and the number of the test tube in which it goes, namely: Tube No. 1 contains the hemolytic system; tube No. 2 contains besides the salt solution, amboceptor and sheep's corpuscles; tubes Nos. 3 and 4, negative sera for control; tubes Nos. 5 and 6, positive sera for control; tubes Nos. 7 and 8, John Smith's or serum to be tested, etc.

To interpret or read the reaction beginners should thoroughly inform themselves as to the degrees of hemolysis. I call the strongest positive reaction four plus, "XXXX" the weakest positive reaction one plus, "X." My method of arriving at these conclusions, is to take the strongest positive serum, three parts or three drops and add one part or one drop of normal salt solution and use one drop of this dilution in the test tubes in which it goes; this will give a three plus "XXX" reaction. Again I take two parts or two drops of the strongest positive serum and add two parts or two drops of normal salt solution and use one drop of this dilution in each test tube in which it goes; this will give a two plus "XX" reaction. Third, I take one part or one drop of strongest solution and use one drop of this dilution in each test tube in which it goes; this will give a one plus "X" reaction. As one will observe I divide the strongest positive serum by quarters, namely: using $\frac{4}{4}$, $\frac{3}{4}$, $\frac{2}{4}$, $\frac{1}{4}$ strength. I know of no easier or simpler method for a beginner to learn or interpret the degrees of comparison of reaction. In fact, if one wishes to be absolutely correct in doing this test, I think they should use this technic for controls or comparison for the various sera to be tested in every test.

When the test has worked correctly, the time to interpret or read the reaction is when tube 1 or the hemolytic system and tubes 3 and 4, the negative control, have completely hemolysed or worked. Usually when the control tubes 3 and 4 have worked, those tubes that have no luetic liver extract in (these tubes are the controls to see if there is anything in the patient's serum that will prevent hemolysis or bind complement) have worked, except tube No. 2 which has no comple-

ment. There should be no hemolysis in this tube, and should be interpreted or read as a "XXXX" in appearance, be the same as tube No. 5 or the strongest positive control. One now records the findings, namely: Tube 1, negative; tube No. 2 four plus, "XXXX"; tubes Nos. 3 and 4 negative; tube No. 5, four plus, "XXXX"; tube No. 6 negative, and the sera being tested marked according to the degrees of hemolysis, whether it be "XXXX", "XXX", "XX", "X", or negative. If one desires to keep the test for a later reading it is best to centrifuge those tubes containing the luetic liver extract for a short time that any corpuscles not hemolysed, may be thrown to the bottom of tube. After centrifuging, place the test in the ice box; this will stop any further hemolysis and the test can be kept for a day or two for any further observation. A "XXXX" is where there is no hemolysis or if centrifuged for a short time, the corpuscles will be thrown to the bottom and the salt solution above will be as clear as before the corpuscles were added, or as clear as salt solution without corpuscles. A good positive control should appear or look the same as tube No. 2, or the tube that has in it only salt solution, amboceptor and sheep's corpuscles. Whether the reaction is "XXXX", "XXX", "XX", "X" or negative, will be determined by comparison with the control tubes representing these dilutions, and will appear brighter red in color and clearer or more transparent as it approaches a "X", or negative reaction.

A good negative control should appear or look the same as tube No. 1, or the tube that contains the hemolytic system. It should be a transparent or clear solution, cherry red in color and upon centrifuging there should be no corpuscles at the bottom of the tube.

THE IMPORTANCE OF EARLY DIAGNOSIS IN LOCOMOTOR ATAXIA.

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An idea has long been prevalent among both physicians and laity that locomotor ataxia is an incurable disease. On the other hand, it is well known that many of the clinical manifestations of syphilis respond readily to the proper remedies. Now that we know that locomotor ataxia is always

due to syphilis, that it is perhaps only a name applicable to syphilis of a certain stage and location, it is incumbent upon us to inquire why the clinical symptoms of the earlier period do, and those of the later, do not respond to treatment, and what are the symptoms so far as the nervous system is concerned that mark the early, perhaps curable, stage.

The lesions of syphilis are essentially of a more or less chronic inflammatory nature. The more acute they are the more readily do they respond to treatment: the chancre disappears in twenty-four to forty-eight hours after salvarsan; the macular rash and the sore throat with equal speed.

Is there a stage in locomotor ataxia in which the process is truly inflammatory?

There are three well known facts which indicate that syphilis invades the nervous system early. They justify us in the belief that this invasion forms the foundation for the development of tabes.

In the first place, we know that most of the so-called syphilis of the nervous system develops in the first four years of the disease. In the second place, the spinal fluid of many an untreated case shows a lymphocytosis and positive Wassermann in the first six months. And in the third place, many cases come to the post mortem table in the third to the fifth or sixth years of the infection showing a distinct spinal meningitis, which is frequently more marked on the dorsal surface of the cord.

Further, many cases of well-marked locomotor ataxia show, post mortem, definite leptomeningitis; we are surely justified in assuming that this inflammation of the meninges is a very important, if not the all-important, factor in the pathogenesis of the disease. In fact, certain authorities have long maintained that this syphilitic meningitis is the true cause of tabes.

A case dying on my service in Dunning from a gumma of the medulla, five years after the first manifestations of syphilis, showed a well-marked spinal meningitis, especially of the dorsal surface of the cord. There was a distinct thinning of the extraneal zone of the posterior columns of the lumbar and sacral segments. Clinically it would have been very difficult indeed to have called this case one of locomotor ataxia. She had had some weakness of the sphincters and

some so-called rheumatism. The rest of the clinical picture was obscured by the gumma. There were, however, the typical degenerative changes of early tabes and the inflammatory processes around the points of entrance of the posterior roots; the latter undoubtedly the cause of the former. Such a case is not a rarity by any means.

There will surely come a time when an inflammatory period will be recognized as the requisite forerunner of a degenerative period in locomotor ataxia.

Degenerative changes are scars. Inflammations may subside leaving changes which may be ignored, but scars are permanent. It is of prime importance to recognize this pre-tabetic syphilis before the inflammatory processes have caused a disabling scarring.

The symptoms and signs of this period of locomotor ataxia are not many. The pains are the most characteristic and the most frequent of the subjective symptoms. In many cases they begin within the first five years after the chancre, and in a large majority of cases they precede the ataxia by many months or even years. They are frequently called rheumatism and treated as such. In the great majority of cases they are in the legs and feet. There are two characteristic varieties. The commonest and the most characteristic are described as stabs or stickings repeated in a small skin area the size of a dollar, very often near the knee or ankle joints. The stabs are described as momentary—"As though a needle or fine knife blade were jabbed into me." These jabs are repeated every few seconds for a few minutes to twenty-four hours.

The painful periods may be frequently repeated during the day or week, and then comparative to absolute freedom be enjoyed for days or weeks. The periods come especially when the patient is tired. After the stabs have been repeated for a short time in one area, the skin of this area frequently becomes tender to the touch. The location of the tortured skin area changes from one period to another. Pains with these characteristics demand the exclusion of syphilis before the physician has done his duty.

The second variety of pains are the tearing, lancinating or lightning pains which shoot down the leg. They are very severe. They usually are spoken of as either so severe they can't be local-

ized, or as running deep in the muscles, or along the bone. They are momentary and repeated. They are frequently accompanied by an almost uncontrollable muscular twitch.

Both these varieties of pain are considered and treated as rheumatism, muscular or otherwise, and since they are fairly well controlled by fifteen-grain doses of aspirin the physician is confirmed in his diagnosis. With care this mistake can always be avoided. The pains are entirely independent of movements except indirectly as they come on with fatigue. Manipulations of the joints are entirely free from pain and may reveal a slight hypotonia rather than any resistance to passive movements. Tenderness will be restricted to the small area affected, and this is in the skin rather than in the joint structures. There is no increase in temperature either general or local.

These characteristics are sufficient to exclude the ordinary rheumatic pains of the joint structures. The pains of so-called sciatica which, with Dr. Patrick and Dr. Bruce of Edinburgh I believe to be in most cases due to hip joint disease, are usually referred along the course of the sciatic. They are especially liable to be caused by certain postural changes and strains. They are also rather more constant than those of locomotor ataxia and restriction of movement is the rule.

In herpes zoster the pain may simulate tabetic pains but the distribution is constant, is associated usually with dull ache in the spinal region corresponding to the segments involved, and in the course of a few days or at most two weeks the painful area becomes the seat of the characteristic eruption.

Tumor of the spinal cord is frequently associated with pains which can closely resemble those of locomotor ataxia, especially when the tumor presses upon or causes distortion of some of the posterior roots. The distribution of these pains is more constant than are those of tabes, they are associated with some rigidity of the spinal column in the region of the tumor, and there is apt to be a greater disturbance of sensation in the distribution of the affected segment than there is in tabes of short duration. In tabes of longer duration, when the sensory changes are marked, the pupillary changes and the ataxia are also quite apparent. Tuberculosis of the spine may also cause root pains similar to those of tabes. Ten-

derness of certain spinous processes, pain in these vertebrae upon movement or jarring, temperature and x-ray findings fix the diagnosis. Hypertrophic pachymeningitis causes similar pains, but is usually in the cervical region; the pains are in the neck and arms and are associated with increased deep reflexes in the legs and a Babinski sign.

In the differential diagnosis between locomotor ataxia and rheumatism the spinal fluid furnishes most important evidence. It is of course negative in rheumatism, while in locomotor ataxia there is usually a lymphocytosis, an increased globulin content and a positive Wassermann. In the diagnosis between locomotor ataxia and tumor, herpes, and pachymeningitis, the fluid findings, so far as cells and globulin are concerned, are not of such paramount value. A positive Wassermann however is of prime importance.

Related to these pains in that the pathology is the same, though the location of the lesions is somewhat higher up the cord, are the girdle pains and the visceral crises. The girdle pains may constitute the first complaint and be spoken of either as a bloating or as a band constricting the abdomen or chest. Careful examination will frequently reveal a slight diminution of pain or touch sensation in the area complained of.

The crises have nothing pathognomonic nor typical by which to identify them. One must look for the characteristic signs on the side of the reflexes and the eyes to discover their origin.

I have spent a good deal of time in the consideration of these pains because they are what most frequently lead the patient to the physician. Also, they are so often incorrectly interpreted largely because when the patient goes to his family physician and complains of pain, calling it rheumatism or gastritis or indigestion, he expects a prescription and relief and not a careful, thorough examination. He doesn't want to submit to the examination in the beginning of his trouble and the physician hesitates to force it on him. A careful description of these pains, however, should always lead the physician to such an examination and a discovery of the signs which, with the findings in the spinal fluid and blood, should lead to correct diagnosis and treatment.

In conjunction with the pains we may elicit a history of sphincter disturbance rather early in locomotor ataxia. This may entirely escape the

patient's notice and only after direct questioning will it be brought out that he can go twelve to eighteen hours without micturition and suffer no discomfort. Or, he may complain of considerable slowness in starting the flow. Less frequently he says that he loses a few drops if he is tired or strains in lifting, etc. Along with this complaint a diminution of sexual power and desire is a very frequent early symptom.

The only other early complaint at all common is a certain unsteadiness in walking in the dark; this, however, usually is brought out only upon direct questioning.

These are the things of which the patient complains as he comes to his doctor. And in many cases he tells the doctor what's the matter with him and asks for a prescription for the rheumatism, gastritis, etc., and he gets it. If the doctor does examine him at this early period he will usually find certain characteristic physical signs; some inequality in the Achilles reflexes or one kneejerk may be a little less active than the other. Such a decrease of the ankle or knee reflex on one side is of greatest importance, much more than a uniform bilateral decrease. The same holds true for the reflexes in the arms.

In the pupils there may be an inequality in size or intensity of reaction to light. One pupil may react quite well while the other reacts but slightly, or may react fairly promptly and then relax again. As with the tendon reflexes so with the pupils; an inequality of reflex reaction is of utmost importance.

There may be slight swaying when standing with the feet, heel and toe, together and the eyes closed. This may be intensified by having the patient stoop forward, or by having him try to stand on one foot.

Also in the early period there may be some diminution in both the deep and superficial pain senses. A firm pinch of the Achilles tendon is extremely uncomfortable to the normal man. Where this is not true one must always be suspicious of organic disease. The same is true of the testicles and the ulnar nerve at the elbow.

There may be diminished response to the pin prick over the lower leg or over a zone running around the chest at about the level of the nipples.

These are the more common early signs of locomotor ataxia. Where any of them are found

in a patient complaining of sharp intermittent pains, of vomiting, of previous transient diplopia, of slight sphincter disturbance, or of diminished sexual power, a lumbar puncture should never be omitted. The presence of over five cells to the cubic millimeter of spinal fluid, an increase in the globulin content, as demonstrable by the ammonium sulphate test and, most of all, a positive Wassermann, will of course settle the question beyond the shadow of a doubt.

These findings in the spinal fluid not only settle the diagnosis, but form a basis for comparison with future punctures after treatment has been instituted. This comparison is, in my experience, of great advantage in judging of the efficacy of the treatment and a puncture should, for that reason, precede any therapeutic measures.

In conclusion, an early diagnosis of locomotor ataxia is important because an inflammatory period probably precedes the degenerative one. The inflammatory changes in the central nervous system are as susceptible to treatment as those in other locations. If syphilis in the pre-tabetic period can be diagnosed, we may be able to prevent the degenerative, disabling lesions sure to come with the further progress of the disease.

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TRANSIENT LESIONS IN EARLY PARESIS

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The subject of paresis is of interest to medical men not alone in its pathological, but in its medicolegal aspect. It is not difficult to recognize the condition at a time when motor disturbance coupled with mental symptoms dominate the clinical picture, but to recognize the incipient case tests the skill of the most observing diagnostician. It is with the thought of emphasizing the importance of recognizing early symptoms that I am reporting a few cases gleaned from the history as given by the relatives of patients received at our hospital.

Those disturbances of motor functions bearing a definite train of symptoms and associated with known lesions are readily recognized and their significance properly interpreted. However, brief

disturbances of a transitory nature and bearing no relation to any known lesion and maintaining no constant and typical position in the symptom syndrome are worthy of more than passing consideration and bear greater clinical significance than are oftentimes credited.

Temporary paralysis of muscle groups, transitory aphasia, facial palsy, ocular and bulbar disturbances, apparently disassociated with any general disease process, should be regarded as an advanced manifestation of lesion of the central nervous system and in general paralysis may be due to early involvement of definite cortical regions.

In every stage of the disease known as general progressive paralysis the clinician finds the meaning of various elements in the clinical picture and relative prominence of individual symptoms quite mystifying. These atypical disturbances of motation have been described by Lissauer. Between the typical or classical general paralysis and the atypical process of Lissauer many transitional forms are encountered. In the clinical picture focal symptoms may play a part and it is with regard to these motor evidences of localization that I wish to present a few cases:

Case 1. Male, aged 28 years; occupation towerman at railroad crossing; without apparent reason suffered a short lapse of consciousness described as lasting but a few minutes but followed by disturbances of the muscles of deglutition which persisted for several weeks; returned to his duties as towerman, guarding the crossing of two important railway lines. He later became irritable, sleepless and expressed some delusional ideas concerning his duties as towerman and his connection with the company by whom he was employed. A neurological and serological examination revealed the evidence of central lesions coupled with mental manifestations. He was committed to the hospital and there became euphoric, irrational in conduct and is now confined to the hospital and classed as an agitated form of paresis.

Case 2. Man, aged 43 years; occupation, police detective; with a positive family history for insanity, suffered a transitory disturbance of orientation lasting for a period of a few hours and followed by no other evidence of motor or mental difficulty; returned to his position as detective and without any further manifestation of disturbance until he willfully drove his automobile over a high embankment. Upon being rescued from the wreckage was found to be in a very agitated and incoherent condition. These periods of disorientation recurred from time to time and it was observed that he had become somewhat euphoric and entertained delusions of an extrav-

agant type concerning his wealth and physical ability. He was finally committed to the hospital, where serological and neurological examination revealed evidence of lesion of the central nervous system. He is now under treatment in the hospital as a demented type of paresis.

Case 3. Male, aged 50 years; occupation, locomotive engineer. About a year before the outbreak there occurred a transient disturbance of consciousness during which the patient failed to recognize his wife or his children. This condition was followed by a slight bulbar disturbance which passed away readily and there was no residual defect observed. No mental symptoms were observed until one evening while his train was standing on the siding he leisurely climbed out of the engine, walked back of the caboose of the freight train, deliberately shot the conductor and killed him instantly. Examination revealed a delusional condition in which he believed himself justified in committing the deed and entertaining a systematized delusion involving his wife and several of his associates, all of whom he planned to destroy. The patient was committed to the Hospital for the Insane where the mental and motor disturbances have become progressive and the patient is under treatment as a demented type of paresis.

Case 4. Man, aged 38 years; plumber; fair education; family history negative; personal history one of intemperance and having been something of a rover, no history of previous mental trouble; history of syphilis ten years ago; one night without warning afflicted with a convulsive seizure lasting a few minutes, from which recovery seemed complete, except for the presence of an aphasia of the cortical sensory type. This condition existed for several months, after which it became less pronounced, although traces of the disturbance remained. The patient resumed his duties as a plumber but later became restless, sleepless and irritable. Became somewhat exalted in his ideas and later markedly delusional; believed that he was sought after by plumbers because of his superior skill; carried home with him tools which did not belong to him; planned to build five cottages and a ten-story hotel in Omaha and proceeded to collect brick bats with which to build the same. Imagined he owned his neighbor's homes, became obscene, profane and noisy. Committed to the hospital May 2, 1911, when he was found to be of the agitated type of paresis. He has, however, experienced a remission and is now in stationary condition.

Case 5. Man, aged 51 years; traveling salesman, good education, with a family history of tuberculosis; no history of syphilitic infection obtainable; gave incomplete history of an injury to the head sustained two years previous. First evidence of disturbance manifested in hemiopia, which trouble became more pronounced, finally accompanied by marked ataxia manifested in all volutary movements. Marked speech defect and motor disturbance; a delusional state intervened. Patient would talk with deceased father and would seek to defend himself from imag-

inary foes. Diagnosis of brain tumor had been made and the family labored under the impression that operative interference would relieve. He began to fail physically and died two years and one month after being received at the hospital.

There was nothing in the autopsy to indicate focal lesions. The tissue change being generally distributed and quite typical of paralytic dementia. However, the optic nerve showed tissue change and the posterior occipital lobes showed general involvement.

Case 6. Man, native of Sweden, aged 57 years, retired farmer, fair social and financial standing, negative family history and a personal history which does not disclose anything other than addiction to the moderate use of alcohol covering a period of several years. Patient manifested ptosis of right lid for two years before this attack. Mental symptoms developed in September, 1911, while at Excelsior Springs, having gone there to secure relief from sleeplessness and condition which he designated as nervousness. At this time he became greatly exalted, developing great aversion for his companions, manifesting great confusion, disorientation and psycho-motor activity. Confined in a private institution, all symptoms became increased. January 14, 1912, patient was transferred to the State Hospital for the Insane. Examination disclosed the following motor symptoms: slightly ataxic gait; slight Romberg; brisk knee jerk; marked intention tremor; fumbled noticeably when searching for his nose; right pupil slightly smaller than left, both reacting to light and to accommodation; physical findings were negative; mental state was one of marked confusion; unsystematized delusions were present; referred to the institution as being located on "Crowned Lands," his wife being related to Queen Victoria. His statements were not clear cut, but were rambling; complained of everything being twisted, especially of the bed clothing and fixtures about his room. April 30 a positive Noguchi was obtained. About this time his mental manifestations became less pronounced; he referred less frequently to his delusions, but at times was rambling and incoherent. His gait became quite ataxic. He became less agitated, with the periods of restlessness confined to a few minutes' duration, after which he would sit quietly. The mental symptoms continued to clear markedly. In March a subsequent puncture was made with the following result: An increase of protein by Noguchi's butyric acid test, an increased number of cells, but the fluid gave a negative Wassermann. Mental symptoms continued to improve until May 1, when patient was paroled, at which time findings were little changed. His pupils were still unequal and are now sluggish to light. During the period of his parole application for the dismissal of guardian was made, the wife holding that his mental condition was such that he was capable of transacting business. An examination of this patient in court disclosed marked

improvement in his mental condition, but stationary condition concerning motor disturbances.

Case 7. Man, aged 43 years, clerk by occupation, with a negative family history, but a personal history of having been intemperate for a period of six or seven years previous to 1911, at which time he was committed to the Hospital for the Insane as a dipsomaniac. He was released at the expiration of three months and it is recorded that he remained sober and industrious after his commitment.

In October, 1913, without any apparent reason, patient developed severe convulsive seizure. This was followed by an apparent recovery without any manifestations of mental or motor anomalies. He returned to his duties and in due time it was noticed that he was somewhat euphoric, boastful and irritable when crossed or opposed. His mental symptoms became so pronounced that he was finally committed to the Hospital for the Insane.

Patient showed progressive mental and motor symptoms and died about one year after admission. The autopsy revealed the lesions generally found in paresis.

Much has been written upon the subject of the distribution of the lesions in general paresis. Observations have been made based upon autopsies in which the diseased process has become extreme. We are taught that the anterior part of the brain was more severely attacked, that the vertex was prone to suffer early and that the occipital region was less involved, though not always free. Schaffer suggests that the brunt of the lesions was borne by the association centers, leaving the sensory cortices relatively free, thus grouping the attack as a system disease. Kaes maintains that the process was a diffused one, spreading over the whole cortex. Alzheimer finds that the lesions are widely spread in progressive cases and that in the majority of cases the orbital gyri suffer most and next the frontal poles and frontal half of the convexity. Samuel E. Orton in a paper before the Medico-psychological Association reports 50 cases unselected in which autopsies revealed lesions as follows in the order of severity: Frontal hippocampal, temporal, pre-central, post-central and lastly occipital.

Whatever information we may derive from these cases and the study of distribution of lesions in terminal cases of paresis may be augmented by our observation of symptoms in early or incipient paresis. The demonstrations of Noguchi and Moore of the treponema pallidum in the brain of cases of general paresis compels us to abandon the theory that this disease is a

pernicious metabolic disturbance set up by syphilitic infection and makes it necessary for us to consider the distribution of lesions from the standpoint of a true infection amenable to the laws governing the channels of infection as in other infectious diseases.

DEDUCTIONS.

1. It would seem that a number of cases of general paralysis encountered in general hospital practice are able to develop upon inquiry a history of more or less diversified and transient motor disturbances affecting limited areas and seemingly disassociated with the general disease process.

2. That these symptoms occur in many cases of general paralysis and do not enter into the case history is not only possible but probable.

3. That the symptoms may constitute an opportune and timely signal for vigorous anti-syphilitic treatment before the mental symptoms appear is tenable.

4. That the individual with a history of syphilis is a worthy subject for careful observation from a neurological standpoint during the rest of his life is self-evident, and more especially if the individual is occupying a position in which public safety depends upon the integrity of his nervous mechanism.

5. The diversified nature of the early symptoms indicate a widely differing involvement of the cerebral areas and may have something to do with the variable findings in the cerebrospinal fluid in early cases.

6. Recognition of central lesions and a history of syphilis promptly and vigorously treated might give a more optimistic coloring to our results by the intraspinal route.

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INTRASPINAL INJECTIONS OF NEOSALVARSAN.

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I wish to state in the beginning that we are willing to submit our experiences concerning the intraspinal injection of neosalvarsan at this early

period only because of the desire to create a more general interest, a more favorable impression and greater confidence in this method of medication. Our first injections were made in the early period of March, 1914, and while they were preceded by the publications of Ravant, whose article appeared in the *Annals of Medicine* in January, 1914, we began this work entirely independently of his experiences. However, his article has proven of value in aiding us and in the technic of the work. In our first injections we used a dilution so that six minims of the solution contained three milligrams of neosalvarsan. At the present time, however, we are using the more concentrated solution. We wish to call attention to the immediate results and symptoms which may arise following these injections, and it is upon that basis alone that we are willing to submit these reports, as it is entirely too early to make any statement as to permanent results of this method of medication.

Our experience extends over a period of four and one-half months and includes the injection of ten cases and twenty-five separate injections. These patients are under our care at the Cook County Hospital.

One of us has employed the technic as follows: Using a fine platinum needle, weighing out the dose of neosalvarsan and dissolving it in 12 to 18 c.c. of patient's spinal fluid and reinjecting by the gravity method. The other method has been the use of the ordinary needle used for spinal puncture and of the ordinary caliber. The neosalvarsan dissolved in a double distilled water in such dilution that one minim of the solution will contain the required dose. A small quantity of fluid has been withdrawn each time to note the presence or absence of blood and for the purpose of making the proper tests for the presence or absence of globulin and cellular elements. The spinal fluid is then caught in the barrel of a Record or Luer syringe, and while the spinal fluid is flowing one minim of the solution containing the neosalvarsan is dropped into the barrel of the syringe which causes it to be thoroughly mixed with the spinal fluid. The piston of the syringe is then immediately replaced and the fluid reinjected slowly into the spinal canal. We submit the following reports as to the symptoms immediately following these injections:

Case 1. Injected March 19, 1914. Diagnosis:

Cerebro-spinal syphilis. Positive Nonne and Noguchi. Injected 1.5 milligrams. Headache 10 hours later and on following day no symptoms. He left the hospital a few days later and no records were made later in the case.

Case 2. May 28, 1914. Tabes with gastric crises. Spinal fluid showing 40 cells to the cmm. with a positive Wassermann, Nonne and Noguchi. Injected three milligrams of neosalvarsan, diluted in 15 cc. of spinal fluid. Within six hours pains were noticed in the back of the head and to a less extent in the lumbar region. Temperature 98.8 degrees, gastric crises following within twelve hours. All symptoms then cleared up. Within four days gastric crises returned, as had been the custom for the past year or two, and they so persisted that it was deemed advisable to perform a Foerster's operation. The posterior roots were severed, including the sixth to the eleventh dorsal, which gave relief for about ten days, then the crises reappeared. He had two attacks since the operation about three weeks ago. The operation was performed by Dr. Kanavel of this city.

Case 3. May 19, 1914. Cerebro-spinal syphilis; positive findings in spinal fluid; cell count 281. Three milligrams of neosalvarsan diluted in 9.5 cc. of spinal fluid were injected, after the solution of neosalvarsan had been standing for forty minutes. Six hours later slight headache; otherwise feeling good. Temperature, 99 degrees.

May 20, pains were complained of in the legs and in the back of the head; temperature, 100 degrees. June 5, the second injection was made, consisting of three milligrams diluted in 12 cc. of spinal fluid; cell count, 66; positive Noguchi and Nonne; six hours later a very slight pain in the back and later gave a history of feeling fine. July 6, third injection of three milligrams of 16 cc. of spinal fluid. Cell count at that time was 22; slightly positive Nonne and Noguchi; no complaints followed this injection; temperature, 98.4 degrees.

Case 4. Tabes. May 14, 1914. Injected 2.5 milligrams dissolved in 21 cc. of spinal fluid. Within a few hours pain was complained of in the legs and in the chest; frontal headache; temperature, 100 degrees, rising later to 102 degrees. May 27, second injection made of 1.5 milligrams in 18 cc. of spinal fluid. Cell count, 15; Nonne positive; no special complaints following this injection. June 24, 1.5 milligrams were injected, diluted in 15 cc. of spinal fluid, followed by rather severe headache and pains in the legs throughout the day; no rising temperature; no other complaints were reported. July 6, three milligrams were injected, spinal fluid showing a cell count of 17, Nonne slightly positive. This was followed within a few hours by a slight dizziness; temperature, 98.4 degrees. The following day a slight numbness complained of in the lower extremities; no bladder nor rectal disturbances; no dizziness, and on the third day the patient stated that he was feeling fine.

Case 5. Cerebro-spinal lues. First injection June

16, 1914; cell count, 33. At this time three milligrams were injected, diluted in 15 cc. of the patient's spinal fluid. Three hours later patient complained of slight headache; temperature, 99 degrees. Seven hours later pain in the lower extremities and in the abdomen, with slight nausea; no bladder disturbances; no paralysis. Eight hours later shooting pains in the spine, but no headache. June 17, headache and severe pains in the region of the injection; patient could hardly stay in bed. Three hours later temperature 100 degrees, pains in the back and the stomach; no bladder disturbances. Four hours later patient feeling much better; the following day feeling fine.

Case 6. Case of general paresis syphilitic choroiditis and optic atrophy. Spinal puncture made March 27, 1914; cell count, 100; positive Nonne and Noguchi. May 19 three milligrams were injected at 9 a. m., and at 12 m. patient complained of headache and pains in the legs; temperature, 99 degrees; perspiring, face flushed. May 20, 2 a. m., nausea and vomiting; temperature, 100 degrees; 4 a. m., pains in the legs, nausea and vomiting; 8 a. m., feels better. May 21, patient slept well; some pains in the legs; temperature, 98.4 degrees. June 5, memory much improved; no bladder disturbances; speech improved; eyesight shows considerable improvement. At that time three milligrams were again injected, followed within a few hours by a rather severe headache, but was much improved on the following day. June 15, patient is very noisy and attempts to escape from the hospital. Mentality poor and has remained so.

Case 7. Tabes. Spinal puncture made May 19, 1914. Cell count, 87; positive Nonne and Noguchi; 2.5 milligrams were injected at 9 a. m. Three hours later patient complained of cramplike condition of the leg; temperature, 98.4 degrees. May 19, patient had a rather restless and sleepless night, vomited once and had pain in the legs. Later in the day the pain subsided. May 21, vomited in morning. May 22 the pains had entirely disappeared, but complains of slight weakness in the right leg. May 23, patient is improved and is able to be out of bed. May 29, patient entirely free from pain; no dizziness. June 16, lumbar puncture, cell count, 53; Nonne faintly positive; 3 milligrams were injected, followed by some pain in the arms and limbs; temperature, 102.2 degrees. June 17, still has pains in the legs, but no nausea. Later in the day feels good; has slight pain in the back of the legs; able to pass urine, but slower than usual. June 19, patient got up to exercise and pains returned for a time, but subsided within two or three hours. July 6, spinal puncture made; 3 milligrams injected; cell count, 50; Nonne slightly positive. This injection was followed by absolutely no complaint of any kind upon the part of the patient. All of the general symptoms show marked improvement.

Case 8. Tabes. Injected June 24, 1914, followed within a few hours by pains in the head; temperature of 99 degrees; face somewhat flushed. June

25, patient slept well; stated he has no pain and felt fine; temperature, 99.5 degrees. No complaints following this record.

Case 9. June 5, 1914. General paresis with primary optic atrophy. Spinal puncture made; shows cell count of 55 per ccm. Nonne strongly positive. Six milligrams were injected, followed in the course of 12 hours by complaint of severe headache, followed by a chill lasting about 40 minutes. Two hours later temperature 102 degrees; patient complained of pains in the legs of a jerking character, with severe headache; three hours later severe headache, but no pains in the legs; nausea and vomiting; temperature, 100.4 degrees. June 8, temperature, 100.8 degrees; unable to be around. June 10, temperature, 99 degrees; no nausea and vomiting. June 12, feels better; does not complain, but he says the eyesight is not so good.

Case 10. Cerebro-spinal lues. Lumbar puncture May 15, 1914; cell count, 217 per ccm. Nonne and Noguchi very positive. May 19, second lumbar puncture made; cell count, 281; 3 milligrams of neosalvarsan were injected, followed by rather severe pains in the legs; temperature, 99 degrees. May 20, temperature, 100 degrees. Still complains of pains in the legs. May 21, temperature, 98 degrees; complains of slight soreness and pains in the legs; general condition as to clinical symptoms very much improved. All subjective symptoms have subsided. June 5 spinal puncture shows a cell count of 66 per ccm. Nonne and Noguchi positive; 3 milligrams injected, with only a complaint of slight pain in the back; no rising temperature. July 6, lumbar puncture showed cell count of 20, Nonne slightly positive, Noguchi negative. Three milligrams were again injected, followed by no complaints whatever; no rise in temperature. Patient generally shows a marked improvement.

CONCLUSIONS.

1. The intraspinal injection of neosalvarsan is followed by no serious results when the technic is properly and carefully carried out,
2. The patient should be instructed to remain in bed in a dorsal position for at least 36 hours following the injection.
3. In cases of cerebrospinal lues and some cases of tabes, good results can be obtained.
4. The danger from severe bladder and rectal disturbances as the result of the injection is not sufficiently great to condemn this method of treatment.
5. We believe when this form of treatment is carried out by proper individuals it will eventually prove one of the practical methods of medication.
6. It is simpler of administration than by the Swift-Ellis method, and by this method the dose is definitely known.

DISCUSSION:

Dr. Grinker: There were three sets of experiments made under my direction and at my invitation. The first was on the Swift-Ellis treatment which we reported to the neurological society. We had five cases subject to the Swift-Ellis treatment and they were given seven injections. We presented only four cases because one had left and those four had all improved subjectively. The improvement was very much like the one that Dr. Hall cited. Summarizing all the work we have done, I agree with those who think that the treatment is still on trial; that, so far, we have seen subjective signs and no cures are recorded, but on the other hand, a great deal of harm may be expected in the unskilled handling of the cases, but I do believe that we should continue. I feel that if you have another 50 or 100 cases it is only then we can give a definite opinion. I take it that the Swift-Ellis has improved cases where we used it and I think the Swift-Ellis method is superior.

CHAIRMAN: We have a committee that is anxiously waiting to report.

PREVENTION OF SYPHILIS.

DR. LEONARD, Reading: This committee has acted on the following resolution.

WHEREAS, Syphilis is responsible for a large percentage of insanity and mental deficiency, be it

Resolved, that:

1. Health departments, municipal and state, should be equipped to make laboratory examinations for venereal diseases.
2. ALL hospitals for the insane should be equipped to make laboratory examinations for venereal diseases.
3. Hospitals and dispensaries for the treatment of venereal diseases should be provided.
4. Physicians should be compelled by law to report cases of venereal diseases as is now done in other contagious diseases.
5. Applicants for marriage should be required to furnish health certificates.
6. Lectures and bulletins should be offered freely to the public, regarding venereal diseases.
7. Newspapers should be requested to use their best influence to educate the people concerning venereal diseases.
8. Sex hygiene should be taught in the public schools above the grammar grades, to the sexes separately.

(Signed) by the Committee, Drs. Evans, Leonard, Cotton, McCaskey, B. F. Williams, Sterne, Peddicord, Clarke, Lindsay, Davis.

CHAIRMAN: All in favor of the adoption of the resolutions which have just been read, signify by the usual sign, aye; opposed (no response).

CHAIRMAN: Carried unanimously. The report is adopted.

Dr. Sterne: A year ago I made a preliminary re-

port on the Swift-Ellis method in a private communication. A year ago I declined to give a definite opinion upon the value of that method and this year, after having another year's experience, I have had under my supervision probably some three hundred injections upon a number of cases. I am still somewhat—so to speak—on the fence as regards the ultimate result which we can expect to get.

First, in the Swift-Ellis method, I have been unable to convince either in private or hospital service, that one method has shown any advantage over the other. It is essentially important to use freshly distilled warm water to avoid the pain, especially in the lower extremities, after the intraspinal injection. Then await a definite length of time to inject that serum or the spinal fluid. The temperature must be fully 56 C. and in that event we find we do not get reaction. The foot of the bed should be raised after the injection is made. We allow the patient nothing to eat before the injection is made and after the injection, only the lightest diet. We keep patients in bed at least 24 hours and preferably 48. I believe we can safely say that with all our experience it is far too early to come to definite conclusions but that the results thus far claimed are better than we have been able to obtain before, but in addition at least, we make it a point to associate the old methods with the new.

SALVARSAN IN THE TREATMENT OF SYPHILIS.

WM. ALLEN PUSEY, M. D.
CHICAGO.

The man who has to do with the treatment of syphilis has never had a greater responsibility put upon him than exists in the question of the use of salvarsan in the treatment of his cases of syphilis. The claims for it have been so strong and the sponsors for it of such high authority that it has been no easy task to exercise restraint in giving one's patients the supposed benefits of it; and yet, there are many considerations which make one hesitate at its administration in the heroic way which has been advocated and which raise serious questions concerning the sum total of its usefulness. Although the time that it has been in use is short, compared with that necessary to get any final knowledge of the ultimate value of any means of treatment in a disease so tricky as syphilis, we are already acquiring a fund of knowledge of salvarsan that enables us more satisfactorily to determine its place in the treatment of that disease.

The questions which confront us now in considering salvarsan indicate a different situation

from that which we thought we were in when salvarsan was introduced and we had the hope that in it we had an effective remedy for the cure of syphilis. Now the questions are how effective is salvarsan in syphilis? How far can it be substituted for the older means of treatment, and what are the objections to its use? It is no longer *therapia sterilizans magna*, to use one of the striking terms we learned from Ehrlich.

At present the subject of salvarsan in syphilis can be considered from two standpoints: its value as a symptomatic remedy, and its value as a curative agent.

Symptomatic Action of Salvarsan. There can be no two opinions as to the specific action of salvarsan upon the active lesions of syphilis. It is a powerful symptomatic remedy. In rapidity of action it surpasses mercury or mercury and iodides in many lesions; in others, it equals or is inferior to these older remedies. In early syphilis it has a quick effect upon the initial lesion, mucous patches, and condylomas. Its action is quick upon mucous-membrane lesions generally. Its effect upon the cutaneous eruptions is not more prompt and not more complete than that of mercury. Upon the severe forms of early syphilides—large pustular eruptions, early gummatous lesions—its action is often strikingly effective. According to wide experience the effect upon the adenopathy of syphilis is surprisingly slight. Upon late gummatous lesions of the skin—apparently less upon gummas of the internal organs and upon bone lesions—the action of salvarsan is usually prompt and effective. It is in extensive and intractable lesions of this sort that it has probably its greatest field of usefulness as a symptomatic remedy; and it is the more promising here because, for the healing of such lesions, moderate doses are sufficient and the use of heroic quantities of the drug are not necessary, as in the attempts at radical cure with it. In the rare cases of severe early or late syphilis, which are not amenable to establish methods of treatment, it undoubtedly is an effective addition to our means of treatment.

Aside from these latter and rare cases there is need to emphasize that salvarsan, as a rule, does nothing in gummatous lesions of syphilis that cannot be done effectively with mercury and the iodides—perhaps done slightly slower, but almost without any of the toxic dangers of salvarsan.

For there is a tendency now to forget the value of the older means of treatment of these lesions. And so we constantly see reference to cases "hopeless by mercurial treatment," "intractable to mercury and iodides" or "malignant." As a matter of fact such cases, in which actual lesions of syphilis are uncontrollable by mercury and the iodides and rational measures, are excessive rarities. The treatment of such lesions by mercury and the iodides is, as a rule, one of the most definite feats of therapeutics.

As to the effect of salvarsan upon the Wassermann, evidence is conflicting. Experience in general is that except in the early primary stage it is not more effective in reversing a positive Wassermann than is mercury; in moderate doses it is less effective than safe vigorous mercurial treatment.

Curative Use of Salvarsan. What of salvarsan as a cure for syphilis—the high result that was hoped for when it was introduced? How far has it realized this hope?

In the primary stage, at the appearance of the chancre, the evidence is strong to lead us to hope that with salvarsan much more can be done than has ever been done before to abort syphilis. That is, when the syphilitic patient is seen before the disease has become generalized, while the spirochetal infection is localized around the initial lesion and before the Wassermann has become positive, it is possible in many cases to prevent the development of secondaries and hold the Wassermann negative by immediately instituting and vigorously carrying through a course of salvarsan and mercury treatment. The period of observation of these cases is still short, and success in preventing all early indications of syphilis is not conclusive proof that the patients are free from syphilis; but it is more than we can do with mercury, and it is strong presumptive evidence that the disease has been aborted.

This abortive action of salvarsan in the primary period gives it a very valuable field of usefulness. About 40 per cent of cases of initial lesion, which can be distinguished by the demonstration of the spirochaeta pallida, show a negative Wassermann for one or two weeks after the lesion's appearance. In these cases there is a reasonable prospect that syphilis can be aborted—a prospect that justifies a vigorous attempt with salvarsan. This of course makes the early diag-

nosis of the initial lesion a matter of great importance.

After this brief stage of promise has passed the prospect of cure rapidly changes. It becomes less promising from week to week, and after secondaries are well established it almost or quite vanishes. That sad conclusion has been forced upon us by the accumulated evidence of recurrences in cases treated in the secondary stage. It has gradually forced the salvarsan advocates from the use of a single massive dose to courses of many repeated doses in combination with the most vigorous mercurial treatment. There the method now rests. In the opinion of salvarsan advocates some early cases can be cured by vigorous treatment. But even they admit that if cure is to be attained it is only by heroic courses of salvarsan—2 to 4 grams of salvarsan in a few weeks—combined with vigorous intramuscular use of mercury. If less than this heroic attempt at cure is made the opinion, even of some salvarsan advocates, is coming around to the view that the drug had better not be used at all. Some have gone even further and do not use it for curative purposes after the Wassermann has become positive.

This position I believe is one which we are forced to by the logic of experience. And this position, quite aside from any hesitation about using the drug on account of its dangers, depends upon one fact—the increased frequency of severe syphilitic relapses, chiefly nervous, after the use of salvarsan. That there is an increased frequency of relapses of syphilis in the form of nervous lesions is now accepted. This is true as well, I believe, of relapses of gummatous lesions in the skin and elsewhere, but attention has been centered upon the nervous lesions because of their seriousness. Attention was early called to the frequency of nervous lesions after salvarsan by Finger, Rille, and others. The fact was bitterly denied by Ehrlich and his school, Benario, with industrious loyalty, going so far as to compile in a book the cases of nerve syphilis in the literature of pre-salvarsan days in order to show that their frequency is not now greater than formerly. But from that position they have been compelled to recede, and now the increased frequency of "neurorecidives" is admitted even by salvarsan enthusiasts. Thus Nichols and Hough, Nichols being one of the earliest and still one of the most enthusiastic salvarsan advocates, say: "The ques-

tion still remains why these relapses are more frequent under treatment with salvarsan than with mercury."

Much difference of opinion has existed as to the reason for these relapses, some attributing them to the direct effect of the arsenic on nervous tissue, Ehrlich's school vigorously maintaining that they are lesions of syphilis. There is little doubt now that the latter view is correct, and in the reason therefor lies the strongest indictment to be made against salvarsan.

To complete the quotation from Nichols and Hough:

Some authors hold that salvarsan damages the nervous system and thus predisposes to a localization of the spirochetes in this region. It seems to us, however, that these relapses can be satisfactorily explained according to Ehrlich's ideas. In a considerable number of cases in the secondary stage the nervous system is infected with or without symptoms. . . . When such a case is treated with salvarsan the great bulk of spirochetes are suddenly destroyed. They are not simply repressed, as is the case under mercury, and the resistance of the body is not gradually stimulated against them. There remain, however, small foci of spirochetes, especially in areas which are less accessible to the circulation, such as are found in the central nervous system. After a time these spirochetes begin to multiply and they meet no resistance such as is afforded by the continuous administration of mercury or by the natural defences of the body, because these defences have not been continuously stimulated by a large number of organisms all over the body. As a result the spirochetes which have remained grow with increased vigor and presently produce symptoms where they are located, in the nervous system.

And as we would expect if this last phrase were stated in the full form logically demanded by the "increased vigor," the spirochetes, growing without the opposition of the usual resistance developed by the infected organism, cause new lesions of severer type than is usual in early syphilis.

Stated in another form this proposition is as follows: Salvarsan destroys the spirochetes except those walled off in inaccessible localities; therefore, the body is not stimulated by a general infection to the production of those anti-substances which are its natural defence, and so builds up little or no resistance. Later these isolated foci of spirochetes grow, and because of lack of acquired resistance to them grow with increased vigor, and so produce damaging lesions. Finally their growth spreads beyond the isolated

focus or foci and, as after the chancre, infection becomes general, while at the same time no natural defence has been built up. In other words, the patient who is treated vigorously with salvarsan but short of absolute destruction of all the spirochetes has his day of reckoning briefly postponed, but at the price of having to meet it later under adverse conditions.

This is why the view is gaining ground that if the prospects are not good of cure from salvarsan, or if it is not to be given in the vigorous way necessary to have a chance of cure, it had better not be used at all in the early period of syphilis when the patient is building up his natural resistance.

This reasoning of course does not apply against its use as a symptomatic remedy for the treatment of the later lesions, long after the patient's specific immunity has been stimulated and utilized.

What about the so-called "biologic" treatment; the treatment which is controlled by the Wassermann reaction?

The Wassermann as an Index of Treatment.

Following the great authority of Neisser, the Wassermann is being widely used as an index of the efficacy and of the necessity for treatment. Neisser's position is this: A positive Wassermann is proof of active syphilis and of the presence of living spirochetes; therefore, a positive Wassermann is an indication for specific treatment. As a corollary of this the efficacy of treatment may be judged by the effect upon the Wassermann. "Conversely a negative reaction, which means the restoration of the serum to its normal state, signifies generally if not complete destruction of the parasites at least the establishment of a condition of equilibrium between the host and the spirochetes, so that the latter assume the character of harmless saprophytes. If any treatment short of complete sterilization is to be of value it must maintain this relationship; hence the Wassermann reaction should be used to control the treatment, as it is usually the most subtle indicator of a disturbance of equilibrium with a tendency to the assumption of pathogenic activity on the part of the spirochetes." This quotation from Browning and McKenzie states well the position of those who make the Wassermann the basis for the so-called "biologic" treatment of syphilis.

It is not established beyond any possible doubt that a positive Wassermann means active syphilis.

This is, however, probably true. All that can with scientific accuracy be said of a positive Wassermann is that it is evidence that the patient has had syphilis—the rest is, in part at least, assumption.

Conversely it is not established that a negative Wassermann means “the establishment of a condition of equilibrium between the host and the spirochetes, so that the latter assume the character of harmless saprophytes.” On the contrary, clinical evidence proves beyond doubt that at times with a negative Wassermann the spirochetes may possess their usual virulence. All experience has shown that in 20 per cent to 30 per cent of cases of late active syphilis the spirochetes are showing every evidence of pathogenic activity in spite of negative Wassermann. One may even see, as I have seen, mucous patches teeming with *spirochaetae pallidae* in late secondary syphilis with the Wassermann negative. So it is not true beyond any possible question that a positive Wassermann means active syphilis, and it is certainly not true that a negative Wassermann means a condition of equilibrium between the spirochetes and the tissues, so that the spirochetes have become harmless saprophytes.

It can be said, however, that the Wassermann reaction in syphilis is not a true specific antibody-antigen reaction. It is established that a specific syphilitic antigen is not necessary to the reaction, and a consideration of all the facts indicates that it is highly probable that the substance in the syphilitic serum that produces the specific Wassermann reaction is not true syphilitic antibody but some undetermined substance. This latter fact is exceedingly important in its practical bearing upon the question of the value of the Wassermann reaction as an index of treatment. For if it were true that the Wassermann reaction is an index of the amount of antibodies produced—in other words, of the immunity which the individual is building up to protect himself—one might well hesitate at using as an index of the efficacy of treatment what was really the index of the individual's acquired resistance to the disease. The subsidence of the Wassermann at the same time with the improvement in the condition of the syphilitic patient is one of the best evidences that it is independent of antibody and that it is a reliable index of the efficacy of treatment.

So far we are upon reasonably safe ground: the subsidence and disappearance of a positive Wassermann is an evidence of improvement in the condition of a syphilitic, and as such is an evidence in favor of the efficacy of the treatment which he is undergoing. But it is only one piece of evidence; it is not conclusive and compelling evidence that all is well; its value may be completely offset by the persistence of hyperplastic glands, by the persistence of cachexia, or, as at times may happen, the Wassermann-unheralded appearance of mucous patches or a late secondary eruption or a gumma. Its proper value then is as one symptom. It is, however, one symptom of great practical importance because it may be elicited when all others have disappeared. But as an index of the condition of a syphilitic patient or of the effect of treatment it is not entitled to preponderating consideration. It is desirable to see it disappear, as it is any other symptom of syphilis; but it is also desirable that adenopathy should subside, that mucous and cutaneous and systemic symptom should disappear, that weight should be maintained, and that the patient's feeling of well-being should be high. If some of these evidences of the disease persist or recur we are in no position to say that the patient is better off than he would be with a persistent or recurrent positive Wassermann.

To repeat then, a negative Wassermann is an evidence of the betterment of syphilis, but it is only one form of evidence, and in weighing its importance as an index of the efficacy of treatment it is entitled to weight only in its relation to all the facts in the case.

The fact that the Wassermann is not all-important is no reason why it should not be taken at frequent intervals during treatment and given reasonable weight. And there is good reason to believe that the sooner it becomes negative and the more constantly and longer it remains negative the better is the prospect of the case, as it is with a similar course of all other symptoms of syphilis.

How long must the Wassermann remain negative before we may proclaim a patient cured? We are in no position to answer that question by any positive statement. There is now a very strong pretension that undertakes to claim a cure of syphilis after the Wassermann has remained

persistently negative for a certain length of time. There is some justification for this in the abortive treatment of syphilis, when, after the chancre, neither a positive Wassermann nor any other evidence of syphilis appears. Omitting, however, these cases the clinical history of syphilis compels us to believe that we cannot give a positive assurance that the disease has gone never to return. We can give assurance after several years of a negative Wassermann, of probable immunity, as we can after several years of symptomatic freedom.

How long then shall the Wassermann be taken? If one is to be logical, as long as one's clinical judgment indicates that the syphilitic should be watched; and in my opinion that means at intervals for life. Bayly, himself a pathologist, considering the question from the theoretical standpoint, gives under what seems from the phrasing of the last half of the sentence to be logical compulsion a good answer to this question: "A single negative reaction obtained with a serum of a patient undergoing treatment by mercury or salvarsan means little but that the patient is reacting to such treatment. A series of negative results taken at intervals of three or six months after all treatment has been given up is necessary before the patient be regarded as cured [here he seems to lose heart—W. A. P.], and even then, until twenty years have passed, we cannot be absolutely certain that the disease is completely and permanently obliterated." In other words, we are no more in position now than we have been in the past to ignore the possibility of future relapses in our luetic cases.

I think I cannot better close this brief analysis than by a quotation from a statement on the present situation in the management of syphilis from Brocq, perhaps the first of present French syphilographers:

Whatever be the power of the new arms which have lately been placed at our disposal for the treatment of pox, the practitioner must clearly understand that the antique rules of therapeusis have not undergone any change. He must grasp the idea that his duty is first and foremost to place the organism in the best possible state to resist, and thus minimize the virulence of the infection; that by a well-ordained hygiene he may reduce to a minimum the secondary manifestations and the tertiary liabilities.—Brocq.

DISCUSSION.

Dr. G. Wilse Robinson: *Mr. Chairman, Ladies and Gentlemen:* It is with pleasure that I welcome the opportunity of discussing this most important subject. In my opinion the auto sero-salvarsan treatment of conditions of the central nervous system secondary to syphilis, marks a distinctive advance in neurological therapy.

A few months ago practitioners of medicine considered tabes and G. P. I. as inevitably progressive as the march of time, and we were justified in our opinion. Because the then known and used therapy exercised very little influence upon these conditions. But now we can offer to these hitherto doomed unfortunates at least a ray of hope.

I believe my experience with this treatment has been sufficiently extensive to justify me in expressing an opinion of its merit; and also in asserting that the idea of its reputed dangers has developed upon faulty technique. I have never used the intra-theal injection of salvarsan or neo-salvarsan as I believe this method of treatment to be dangerous.

My method in brief is as follows: I use an intra-venous injection of neo-salvarsan once a week, until I have given from eight to twelve injections. The water which I use for making my solution I have recently distilled and auto-claved. Dirty water is responsible for many of the accidents and complications following this operation. Forty to sixty minutes after giving my intra-venous injection I withdraw about 60 c.c. of blood. As soon as the blood coagulates, the clot is separated from the walls of the glass container and is set away in a refrigerator until the following day. By this time a sufficient amount of serum has separated away. I use from 12 to 15 c.c. serum. This is heated thirty minutes at 56 degrees centigrade. To this I add an equal quantity of normal sterile saline, giving me a 50 per cent. solution of salvarsanized serum. I withdraw some cerebro-spinal fluid before making my injection, but I rarely withdraw as much fluid as I inject.

After making an injection I advise the patient to lie down for a few hours. If I have any disagreeable symptoms following either the intra-venous injection or the intra-theal injection, I immediately try to ascertain wherein the technique has been faulty. I do not believe there should be such symptoms.

I have to date made approximately 150 injections, having treated about 18 patients. The major portion of my patients have been paretics. All of the paretics to whom I have given this treatment have improved. Three are clinically well, one has relapsed, and the others are improving. In my experience the tabetics respond more promptly than do the paretics. All of the tabetic symptoms are influenced favorably. One patient with the most distressing attack of gastric-crises of months' duration was entirely relieved after the second injection. Another case of tabes had a painful stump for seven years. He had had many operations upon the stump which gave no relief. After the first injection all pain in the stump ceased.

The obvious conclusion was that the pains were tabetic pains and did not belong to the stump per se.

In conclusion permit me to emphasize my statement that the danger is not in the treatment, but in the carelessness of the physician. This treatment has given me results which I never dreamed of getting with any other. I am confident that many cases of tabes and G. P. I. can be entirely cured.

CHAIRMAN: I want to say that we owe a great deal of gratitude to our esteemed secretary for getting up this program, I feel we have been very successful in our meeting of the Chicago Medical Society, and we thank you visitors for taking such an active part in our program and we feel much good will come out of it.

The meeting is adjourned. We hope we will see you all again next year.

SURGERY IN HOSPITALS FOR THE INSANE.*

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MILLEDGEVILLE, GA.

Up to a comparatively recent period the surgical work done in hospitals for the insane was confined chiefly to minor operations and to an occasional emergency operation of greater severity, the latter being usually performed by surgeons from without the institutions. Medical cases have always received careful treatment, but as a rule surgical indications have been neglected.

In many hospitals, at the present day, the importance of this line of work is fully appreciated and one or more surgeons find places upon the consulting staff of each. In these institutions the members of the medical staff are allowed to perform only the minor operations while those of graver character are done by the consulting surgeon or by a member of the staff under his supervision. As a result of such conditions a lack of interest in surgical work is noticeable; and by reason of this failure to obtain actual experience in the technique of the more difficult operations and to assume full responsibility for the patients' after treatment, few competent surgeons are found upon the staffs of hospitals for the insane.

Any measure which serves to keep aroused interest in a department of medicine, which is at times somewhat monotonous in its necessary routine, increases the efficiency of medical officers

in every branch of their work, and leads them to be constantly on the outlook for conditions which would otherwise pass unnoticed. Many insane patients, by reason of their mental disorder, suffer in silence from conditions which might easily be remedied by surgical measures. For example, it not rarely happens that a strangulated hernia is discovered only after the constriction has existed for so long a time that gangrene of the intestine has resulted, and this without complaint from the demented patient whose condition is recognized only when his illness becomes evident to superficial observers.

On the staff of every hospital some members will be found for whom surgery possesses no attraction, but the impetus which they receive from those interested in this work causes them to recognize surgical indications more readily than they otherwise would do.

The spirit of emulation which is aroused by opportunities for doing real surgical work is a healthy one, and adds greatly to the interest of hospital physicians in their whole service. They are constantly on the outlook for cases that can be benefited by operation, and consequently their patients are more carefully examined and observed. When opportunity presents to do merely the trivial operations and to superintend the after treatment of cases operated upon by others, a certain degree of mortification and dissatisfaction is felt, even though unexpressed, at the evident acceptance of the physicians' lack of ability to do work of consequence.

The statement has been repeatedly made that the insane do not bear surgical procedures well. This is in direct conflict with our experience, although it is true that the after treatment of these cases is often complicated by the patients' non-cooperation and occasionally by their active opposition. However, in the insane, we do not find that the operation is looked forward to with dread nor that its outcome occasions the anxiety which so often unfavorably influences operative cases among the sane.

A number of years ago, following the publication of a series of operations upon the pelvic organs of insane females, which operations were followed by the mental restoration of the patients, quite a degree of enthusiasm was aroused in certain quarters regarding the curative effects of such measures. Many insane females suffered

*Read at a meeting of alienists and neurologists held under the auspices of the Chicago Medical Society, June 23-25, 1913.

mutilation before the results confirmed the opinion that such operations were worthless in so far as the cure of mental disorders was concerned.

That insane persons, who suffer from diseased organs or from other conditions in which surgical measures promise relief, are as much entitled to the alleviation of pain or discomfort which these measures yield as are those who are not insane, admits of no discussion. At the present day, the consensus of opinion is that wherever abnormal conditions are present and would in a sane person receive surgical treatment because of the distressing train of symptoms which they entail, the same operations and for the same reasons should be granted to insane persons.

In considering the reports which we still occasionally see of mental restoration following operative measures, it should be remembered that in some forms of insanity recovery is to be expected and would naturally follow even in the absence of relief from irritating conditions, and that when in such cases recovery does follow operation, to the latter is attributed a measure of credit to which it is not entitled. Other forms of insanity are from the outset incurable, and in these forms, of course, no curative results can follow operation, though the physical condition may be improved and a considerable degree of comfort can be attained,

If surgeons could be induced to secure the opinion of a psychiatrist before holding out to the relatives of an insane person the hope of cure as the result of surgical measures, much disappointment would be avoided, and many patients would be spared unnecessary suffering. It is not uncommon to have patients suffering from incurable mental disorders brought to hospitals for the insane after having undergone operations which were suggested to them, or to their relatives, as offering promise of mental restoration.

For some years past it has been the policy of the Georgia State Sanitarium to encourage certain members of its staff to qualify themselves to cope with the usual surgical conditions encountered among its patients. In consequence of this policy there has been a gradual growth of interest in surgical work until at present no patient fails to receive surgical attention because of the absence of competent men to furnish it. Our object is not to restore the insane individual to his normal mental capacity by

means of surgical operations, but merely to relieve diseased conditions. With the relief which these measures bring, incidentally there occasionally follows improvement or cure of the mental disorder.

To convey an idea of the amount of surgical work performed by the members of the staff of the Georgia State Sanitarium, it will be necessary to offer the following table which shows the more important operations from Jan. 1, 1910, to May 1, 1913. While their number and variety would be regarded as quite meagre if reported by a general hospital, they make a fairly creditable showing when consideration is given to the fact that the surgical work forms only a small portion of the activities of a hospital for the insane.

In addition to the operations listed in this table, 1,471 minor surgical procedures were carried out during the same interval of time; this number does not include the reduction and fixation of fractures, dilatation of urethral strictures, etc.

SURGICAL OPERATIONS FROM JANUARY 1, 1910, TO MAY 1, 1913.

Surgery of the Head—

Adenoidectomy	1
Adenoidectomy with tonsillotomy.....	1
Tonsillotomy	2
Harelip (double).....	1
Tumor of scalp, excision.....	5
Epithelioma of face, excision.....	5
Enucleation of eye.....	7
Tumor of orbit, excision.....	1
Trephine of skull.....	8
Plastic repair of lip.....	1

Surgery of the Neck—

Cervical glands, excision.....	3
Thyroidectomy	3

Surgery of the Thorax—

Amputation of breast.....	3
Osteotomy (osteomyelitis of clavicle)	2
Tumor of breast, excision.....	1

Surgery of Abdominal and Pelvic Organs—

Appendectomy	34
Appendectomy with oophorectomy.....	3
Appendectomy, salpingo-oophorectomy, dilatation and curettage	1
Abdominal section with drainage.....	1
Cholecystotomy	3
Cholecystostomy	1
Circumcision	35
Circumcision with excision of varicose veins.....	1
Exploratory laparotomy.....	5
Excision of portion of colon with closure of perforations..	1
Enterostomy (foreign bodies).....	3
Fistulotomy	3
Hemorrhoidectomy	27
Hemorrhoidectomy with fistulotomy.....	1
Herniotomy, inguinal.....	31
Herniotomy, inguinal, double.....	5
Herniotomy, umbilical.....	2
Herniotomy, femoral.....	1
Hydrocele (radical cure).....	4
Orchidectomy	3
Posterior urethrotomy.....	1
Resection of caecum.....	1
Secondary laparotomy.....	1
Varicocele, excision of veins.....	4
Amputation of prolapsed rectum.....	3

Surgery of the Female Pelvic Organs—

Dilatation and curettage of uterus.....	35
Cystotomy, supra-pubic.....	1
Hysterectomy, abdominal.....	22

Hysterectomy, vaginal.....	1
Oophorectomy	5
Oophorectomy with suspension of uterus.....	1
Oophorectomy with removal of fibroids.....	1
Ovarian cyst, removal.....	2
Perineorrhaphy	8
Perineorrhaphy with colporrhaphy.....	1
Perineorrhaphy with trachelorrhaphy.....	2
Salpingo-oophorectomy	3
Salpingo-oophorectomy, double.....	10
Salpingo-oophorectomy, removal of fibroids and broad ligament cyst.....	1
Salpingo-oophorectomy with dilatation and curettage.....	1
Suspension of uterus.....	4
Suspension, perineorrhaphy, trachelorrhaphy, oophorectomy	1
Trachelorrhaphy	4
Trachelorrhaphy with suspension of uterus.....	1
Vesico-vaginal fistula closed.....	1

<i>Surgery of the Upper Extremity—</i>	
Amputation of finger.....	9
Tumor of wrist, excision.....	1
Tumor of forearm, excision.....	1
Skin graft.....	6

<i>Surgery of the Lower Extremity—</i>	
Amputation of foot.....	1
Amputation of toe.....	5
Tumor of ankle, excision.....	1
Tumor of buttock, excision.....	1
Excision of varicose veins.....	2
Excision of long saphenous vein.....	5

Total	356
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Though nine patients died following operation, the greater number of deaths were unavoidable, and would have occurred even in the most experienced surgical hands, as the following tabulation of operation and cause of death shows:

Operation—	Cause of death—
Amputation of foot.....	Acute cardiac dilatation (occurring 2 hours after operation).
Appendectomy	Dysentery.
Salpingo-oophorectomy	Pleurisy with retroperitoneal abscess.
Oophorectomy	Intestinal paralysis.
Herniotomy, inguinal.....	Acute cystitis.
Cholecystotomy	Septic peritonitis.
Herniotomy, femoral.....	Intestinal gangrene.
Trepaine	Compound, comminuted fracture of skull (patient never conscious after injury).
Herniotomy, inguinal, double.....	Acute nephritis.

The number of recoveries and improvements following the operations included in the table may be disappointing to those who see in surgical measures hope for the restoration of a large number of the insane. It should be remembered, however, that these operations were performed only for the relief of conditions which were dangerous to life, or which caused pain and distress to the patient. Eleven patients were restored apparently to their normal mental condition; twenty-two showed marked improvement. The terms "recovery" and "improvement" refer to the mental condition only, as almost every patient was benefited more or less, physically, by these measures, and by them the lives of many were preserved. In only one instance was the subsequent condition of the patient unfavorably influenced by the operation. This was the case of a man in whom a constant clonic spasm of the arm caused extreme mental and physical distress. The brain was exposed in the region of the arm cen-

ters, but no cause for the spasm was discovered. Following the operation the arm became paralyzed, and in so far the condition of the patient was made worse.

The forms of insanity from which the patients who recovered suffered were, for the most part, those in which recovery would be expected in any event, and the doubt still remains whether the operation determined recovery or recovery occurred despite the operation.

PSYCHOSES OF PATIENTS WHO RECOVERED.	
Alcoholic psychosis.....	1
Allied to dementia præcox.....	1
Drug psychosis.....	2
Infective-exhaustive and autotoxic psychosis.....	3
Manic-depressive psychosis.....	2
Unclassified	2
11	

PSYCHOSES OF PATIENTS WHO IMPROVED.	
Alcoholic psychosis.....	1
Allied to dementia præcox.....	1
Dementia præcox.....	3
Depression undifferentiated.....	1
Drug psychosis.....	1
Epileptic psychosis.....	1
Infective-exhaustive and autotoxic psychosis	2
Manic-depressive psychosis.....	11
Psychosis accompanying pellagra.....	1
22	

The largest percentage of recoveries from psychoses are found in the manic-depressive, the alcoholic, the toxic and the infective-exhaustive groups. That this expectation was borne out in our patients who recovered and improved is shown by the above tabulations in which are seen that of the eleven recoveries, eight belonged to one of these groups, while of the twenty-two improved, fifteen were so classified.

Below is given in tabulated form the operations which were followed by recovery or improvement, with the number of patients restored and improved and the number of such operations performed.

Operation—	R.	I.	No. of Operations.
Appendectomy	1	..	34
Appendectomy, salpingo-oophorectomy...	1	..	3
Appendectomy, salpingo-oophorectomy, dilatation and curettage.....	..	1	1
Dilatation and curettage of uterus.....	1	4	35
Enucleation	1	..	7
Fistulotomy	1	..	3
Hemorrhoidectomy	1	1	27
Herniotomy .....	..	3	39
Hysterectomy	1	2	23
Oophorectomy with suspension of uterus .....	..	1	1
Ovarian cyst, removed.....	..	1	2
Perineorrhaphy .....	..	2	9
Perineorrhaphy with trachelorrhaphy....	1	..	3
Salpingo-oophorectomy	2	3	13
Salpingo-oophorectomy, suspension, dilatation and curettage.....	..	1	1
Suspension of uterus.....	1	1	4
Thyroidectomy .....	..	2	3

R = restored. I = improved.

SUMMARY.

1. Surgery is a legitimate work for the asylum physician and should be entrusted to him.

2. It supplies an added interest to duties which are too liable to become monotonous.

3. The general efficiency of the whole staff will be raised by the recognition of their ability to cope with any surgical emergency.

4. The insane bear surgical procedures well, and are as much entitled as are the sane to the relief which such measures confer.

5. Operations upon the insane should be performed with the same objects in view as when done upon the sane.

6. The hope of curing insanity by operation is rarely justified.

7. Mental recovery after operation depends rather upon the form of psychosis encountered than upon the operation itself.

PRESENILE PSYCHOSIS.*

E. Z. LEVITIN, M. D.

PEORIA, ILL.

The classification of mental diseases has varied from time to time and, of late years, we have attempted to adhere to Kraepelin's outline. Ziehen attempted a classification upon the basis of whether the disease was of an affective type or one in the intellectual field. Dementia praecox can be mainly credited to Kraepelin, as it was he who developed this particular psychosis and blazoned the pathway for future investigators, who have regarded his original statements with earnestness and have not in any way tried to eliminate the main facts of the various sub-types.

One wonders frequently whether psychiatry has really made any well defined advances since ancient time. In the days of Hippocrates and Galen, the period of intellectual height during which Plato, Aristotle and Socrates lived, one was able to find reference to mental alienation, with an occasional attempt at classification. The old outline of mania, melancholia, senile states and epilepsy was kept in mind in those days, and the large group of adolescent cases were still not studied and no attempt made to differentiate between the deteriorated and non-deteriorated psychoses.

It is true that phrenology had been practised a number of centuries, but true cerebral localization was unheard of until the middle of the 19th

century, when Broca and Fritsch were able to demonstrate before the Neurological Association definite results obtained from laboratory experimentation. This awakened general interest and laboratory experiments brought forth points of value, at the same time observation of cases of aphasia of various types, followed in many instances by necropsies, were able to demonstrate the true value of the knowledge of localization.

Modern psychiatry brings us up to the time of three men, Wernicke, Ziehen and Kraepelin. These men have done an enormous amount of work and have put psychiatry upon a working basis. It is true that there are many things about insanity that are still hidden in mystery, but at least there is no fear shown in attempting to unravel the etiology of these conditions, thereby unveiling the possibility of true organic pathology being the basis of the so-called functional diseases. Psychiatry is still in its infancy; even the best of psychiatrists differ amongst themselves upon essential points. Some investigators insist that the nervous element of the brain undergoes certain changes, even during the ordinary process of cerebral functioning. The other school considers the neurones as conductors, and the activity of the brain as a state of conductivity. This theory seems to me to be like some of the old metaphysical theories, an attempt to define processes that are of an unknown character, as those impossible of definition and metaphorically akin to electricity.

Within the last few years such men as Kraepelin, Alzheimer and others have accumulated a series of cases showing certain symptoms that in their general course and type simulated to a great extent the senile states, though the average age of the individual afflicted was in the forties and early fifties. These patients did not show the typical land markings of an involutional melancholia, or the confusional state of an infective exhaustive psychosis, but rather those of a true senile psychosis. Because of the resemblance to the latter condition, the several investigators have attempted to classify such cases under the title of *pre-senile states*.

Alzheimer has described several cases, characterized by distinct pathology consisting of plaque formation in certain parts of the brain, especially the prefrontal and hippocampal gyri. At the same time arteriosclerosis is present in-

*Read at a meeting of alienists and neurologists held under the auspices of the Chicago Medical Society, June 25, 1913.

volving the minute vessels of the brain, but no distinct changes evident in the larger cerebral vessels. The main clinical symptoms were those of an aphasia and a paraphasia, accompanied with a disorientation and apprehension, impairment of memory, with some occasional depression. Delusions and hallucinations were present, characterized by their irrelevancy and constant changes. What especially seemed to be definite in many of these cases, was the peculiar conduct of the patient as if she had suddenly been robbed of certain parts of her brain, resulting in a peculiar hesitancy and groping for words and thoughts. When one, upon necropsy, finds these localized plaques, it may be understood how this peculiar punching out of thoughts and words may occur.

A point of interest to note is that most of these cases occur in women. Recently Kraepelin has written concerning the pre-senile states and with clearness and exactness has attempted to bring out certain types of this psychosis. He has shown that there are certain cases that resemble the depressed type of the manic depressive and still, because of their incoherency, their inaccessibility at times, their varied delusions and hallucinations, one cannot justifiably group them as a true type of manic depressive. In taking up the late catatonias, he has demonstrated the presence of the typical symptoms of this condition, at the same time showing that the course of this disease differs in certain essential points from the true catatonic type of dementia praecox. Here the possibility of latent dementia praecox springing up under the stress of pre-senile changes can be brought forth, but, in my mind, the only way in which one can clear the mystery of adolescent insanity, as we termed this psychosis years ago, is not to call everything dementia praecox, but try to account for diseases occurring in the presenium by reasons founded upon tangible possibilities occurring during this age.

(Kraepelin has, as well, described a series of cases showing paranoic tendencies, which at first were ill defined, but later became fixed, and absorbed the entire life of the individual, rendering congenial home life an impossibility. These symptoms are accompanied with signs of deterioration and symptoms of persistent apprehension are constantly present.)

One would naturally ask the question, what peculiar stress, or change, was occurring at this particular stage of life resulting in such profound psychic changes in women to the practical exclusion of men. When one remembers that Shakespeare in describing the seven ages of man laid special stress upon the male sex, and we wonder what has occurred within recent times to shift the psychic pathology from man to woman. There is without doubt a condition existing in modern society in all the walks of life that has brought woman in contact with problems that in many instances she has not been able to overcome. It must not be forgotten that the progress made by woman within the last 50 years is as great in her special fields as the progress made by communities and nations, as, for example, the Japanese.

When one remembers that the gradual evolutionary state is necessary to a certain degree, it can be understood why given certain predisposing factors, such as familial traits and taints, occurrences in early adolescence of a psychic nature, various incidents in the marital experience, difficulties of overcoming economic situations, the latter associated with an environment of unpleasant nature, with all of the above and much more, it is not hard to understand why, during certain decades, the female sex reacts more profoundly and displays a more acute course than the male does.

During the past three years there have been admitted to the Peoria State Hospital nine cases, which were provisionally classified as pre-senile psychosis; seven of these were women, two men. I say, provisionally, because the classification, even at the present time, is rather indefinite. The knowledge of the symptomatology of these types, as well, is rather indistinct. Observation has shown that these patients pursued an acute course, during which time, in the depressed type, delusions and hallucinations were prominent. A distinct clouding of consciousness was present and a decided memory defect evident. In the paranoid type, the ideas of infidelity in women in the middle forties were especially pronounced.

In one case the woman was the mother of several children and went as far as to suspect her husband of immoral practices with various neighboring women and even with one of her daughters. It was impossible to attempt to reason with her. Her memory showed a decided defect, there was a condition

of apprehension and anxiety present, which was evidenced by fear of examination, fear of the nurses and physicians, general restlessness and a decided disorientation.

Another case, patient 48 years of age, who appears about 60 years, has an arteriosclerosis, which is more than one would expect at her age; was admitted in a condition of clouding, psychomotor restlessness, constant hallucinations and condition of apprehension. This patient showed a certain amount of distractibility, but the amount could not be ascertained because of her extreme clouding. Her memory showed decided defects, though it was impossible to state positively whether these defects were those of aphasia or amnesia. This patient is under observation at the present time and continues in her clouded state, is disoriented, rambling in her talk, possibly reacting to hallucinations, apparently having various delusions, is running down physically in spite of all that is done for her.

An interesting case that has been under observation for some time is a female patient, 47 years of age, who has the following history: Shortly before admission to the hospital, the patient sustained a shock, being present at the death of a favorite niece, who was fatally burned in an explosion. Within a short time after this occurrence she became absorbed in thought, would sit or stand in one place staring into vacancy for lengthy periods at a time, talked of seeing a vision of a child at night, etc. She suddenly became excited, talked constantly concerning religious matters, became disoriented for time, place and person, presented a clouding of consciousness, had distinct visual hallucinations and, about this time, began to show typical symptoms of catatonia. She would have periods of mutism, would indulge in stereotypic movements, showed a negativistic trend, would secrete and hide herself in all manner of peculiar places. Her memory at that time showed a decided defect. She would have periods of violence and was untidy and destructive. This condition has existed for about 16 months. She does not show the typical emotional indifference of the dementia praecox; on the contrary she shows an instability of mood. Her attention and retention are defective, but in all probability this is partly due to her clouding and disorientation. This case was first diagnosed as a catatonic dementia praecox, but, on representation, was classified as belonging to the catatonic group of pre-senile psychosis.

Thus one can go on in detail describing these cases, but the well-known picture as elaborately depicted by Kraepelin we have all read. I believe it would be more to the point to try to find out why such psychic states occur at this particular period of life especially in women. Why do we suddenly have in the fifth decade of life an acute psychosis during which we have frequently a panorama of ideas flashing through the pa-

tient's mind, extreme anxiety, clouding, etc.? One wonders frequently how such myriads of hallucinations and delusions can in some cases rapidly replace themselves in a short period of time. The few post-mortems made, show profound destruction of nerve elements as well as plaque formation.

We all know that arteriosclerosis has its inception in early adolescence. It is true that its progress at first is at first microscopic, but still its presence is sure. The depth of biology and histo-pathology in their relation to mental disease have not been fathomed up to the present day. Why should not individuals show premature changes in the vascular system, characterized by local arteriofibrosis in certain areas of the brain; which, if occurring in the higher centers would result in pictures resembling the psychosis under discussion, . . . empirical research work it is true is not the scientific method of obtaining the truth, but when such men as Ehrlich and others have succeeded by pursuing such methods and arriving at certain conclusions, why cannot possibilities be followed up and proven either right or wrong.

The ductless glands have been blamed and held responsible for almost every condition imaginable, but since such glands as the thyroid do assist in retaining the equilibrium of the patient, why cannot it be possible that there is some disturbance of this system resulting in arterial changes producing this psychosis? When the Rockefeller Institute can, in a period of a few years, open up our eyes to the true etiology and method of transmission of a disease that was considered of mysterious origin only three years ago, why cannot systematized research work attempt to arrive at the etiology of this psychosis curtailing the lives of individuals who have been normal and of value to the community up to the onset of this disease?

The study of blood pressure is of interest in this condition; some cases have shown a high blood pressure and some the reverse; usually low blood pressure has been the predominating feature.

One would ask again what produced this disturbance in blood pressure; is it secondary to the localized cerebral arterial fibrosis or is it the primary etiological factor in the production of this cerebral histopathology? The possibility

of endogenous toxins produced in the circulatory system affecting the nervous tissue and at the same time producing permanent changes in other structures, may as well be considered. Auto-intoxication is a term that has been ridiculed of late years. Still, when one excludes alcohol and syphilis, I am firmly convinced that the products elaborated within the body are more deleterious to the various systems than any extraneous toxemias. When one remembers that fatigue toxins are constantly being manufactured in the body, that they have a deleterious effect upon the human economy one can then realize that with the approach of middle life, with its tendencies for general involution, you will have a decrease in function of the various systems followed by an extra accumulation of these toxins producing certain pathological symptoms.

In the late catatonias, one notices that there is no dissociation present between the intellectual field and the emotional field. Ordinarily this relationship is well balanced. The anxious state, as well, is a predominant feature in the late catatonias associated with a dread of future events, apprehension in contact with the outer world, all this resulting in a withdrawal within one's self, producing what to us is a meaningless attitude, conduct or behavior.

Last, but not least, we have a type of this psychosis which is entirely confined to the female sex occurring during the early involutional period it is true, but not always accompanied by the physical signs of sexual involution. These patients have paranoid delusions, not accompanied by any evident deterioration, no exaltation of mood shown or depression shown. The judgment and reasoning is as well as one would wish, though when the patient is questioned concerning her false ideas, she shows absolutely no insight into her state, or realization of the absurdity of her delusions. These delusions are usually of jealousy, suspicion and of an erotic character. Later we have apprehension, loss of memory-deterioration. Very little is known of this particular type, but one would naturally attempt to make a psychological study of the underlying inner causes bringing forth at this particular decade such ideas of jealousy as are so commonly present. It is true that the involutional period is the main background, but this is not the es-

sentia substrata present, resulting in the gradual production of senseless suspicion and jealousies. The gradual realization that the termination of her sexual life is approaching, no doubt, in many cases makes the woman's mood one of doubt and anxiety and distrust. Constant brooding over this fact accompanied by the symptoms of the menopause gradually brings forth suspicions of jealousy and infidelity. In many cases the patient realizes that these are without foundation and senseless and still these ideas, as baseless as they are, rapidly change, assuming a different coloring from day to day. Every action or look on the part of the one she cares for is misconstrued and elaborated frequently until a delusion, which is anything but well thought out, makes one think of a deteriorated mind, when to one's surprise, analysis of the general mental attitude of the patient reveals no symptoms of dementia. I believe many of these cases could be treated with a fair amount of success if the patient could be put under constant observation during the early phases of this psychosis.

It is true that hereditary influences have a great deal to do with the susceptibility of the individual to influences of environment and association. At the same time one cannot lay too much stress on the influence of economical factors and domestic occurrences upon a patient of the neurotic temperament. The treatment of pre-senile states is one of prevention rather than cure. It is easier to treat prophylactically because the hereditary influences are not at all as powerful in these conditions as in dementia praecox or the true manic depressive psychoses. It is because of the fact that the stress of daily life has increased in past years with the ever present sapping of the energies of women during mature life that localization of disturbances of equilibrium are found present in the nervous system. The nervous system of woman responds more rapidly to stimuli than that of man, and, therefore, the progressive fatigability is greater in that proportion.

How can we overcome this tendency to early senility? What can be done to counteract the physiological demands put upon man and woman? The present life is one of high tension and constant endeavor, the age of competition has reached its highest state and has invaded not only the lives of men, but has permeated the at-

mosphere of domestic life. Woman has demands made upon her that were non-existent years ago. Some are able to bear the burden, others cannot and as a result the most highly developed system of the body, the nervous system, is the first one that weakens. Many an ambition has become futile as the approach of the presenium became evident and, instead of a conservation of physical and mental faculties, there is a yielding of the same under the stress of environmental stimuli, with a resultant gradual development of a psychosis.

These patients enter state hospitals in an active delirium very frequently; are anxious, depressed and have various paranoid ideas. It needs the greatest amount of tact to be able to receive these patients and make them feel at home and understand that treatment and not restraint is the reason for their admission. It needs kindness of manner and deftness of handling, to gently convince these patients that no harm will come to them. In many of these cases, treatment in a single room with a special nurse is essential. Under the constant trained eye of a competent nurse, the various phobias, anxious states, hallucinations and delusions can be kept partially under control by eradicating to their utmost stimuli from without and supplanting the same with reinforcement tending to arouse the patient from her trend of thought and bring about a stream of thought into a channel characterized by the absence of anxious thoughts and their resulting delusions and hallucinations.

Presenility and modern life go hand in hand, and its presence will increase in proportion to the exigencies taxing the members of modern society. From this viewpoint, it is of great importance that members of the medical profession should take more interest in the life of the Nation, and this can only be accomplished by representation in Legislatures and Congress. Then we can alleviate the conditions predisposing to the development of early senility.

A CASE OF DEMENTIA PRAECOX.

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The student of mental disorders is no longer satisfied with a crude classification into mania,

melancholia and dementia nor with a more elaborate but purely symptomological classification. The adoption of the purely symptomological classification, with possibly some modifications, is by now almost universal and although a description of the various symptoms is important, it becomes of more and more importance to study each individual symptom more closely. Such a classification permits of a grouping of mental disorders according to their outcome.

Kraepelin and many others have arrived at a classification based upon the study of a great number of cases presenting points in common. By this statistical method it makes no difference what the nature of the special case may be so long as it fulfills certain conditions as regards the emotional status, morbid perceptions, delusions, mannerisms, etc.

The increasing knowledge of biologic psychology leads to the conclusion that attention must be paid to the actual case and that a more general description does not suffice. The works of Freud, Bleuler, Jung, Riklin, Brill and others show how incomplete is the information gained from the older methods of study, compared with the results obtained from the psychoanalytic methods.

Regarding the application of the word association test a few words may not be amiss. Those who hear or read for the first time of the psychoanalytic method may broadly be divided into two classes, namely, those whose interest is aroused though their intellect may be puzzled, and those who from the outset are repelled and adopt a hostile attitude. The line between the two classes is not a very sharp one, for I think it is true that no one has ultimately adopted the theory and practice of phychanalysis without first having to overcome various difficulties and obstacles in his own mind.

To some the conclusions reached by Freud and his disciples seem so grotesquely unlikely, and the objections to their methods so obvious, that they do not feel it worth while to pursue the subject any further. Others, equally conscious of the objections that immediately rise in their minds, are sufficiently open minded or tolerant to think it possible that perhaps their difficulties are due to their insufficient grasp of the matter, and that adequate explanation may exist which they will find if they pursue their inquiry.

I venture to believe that the attitude of many men in the medical service of the state hospitals, towards Freud's method of investigation and word association test, is very much what my own was previous to a few years ago. I had been repelled by the assertions of investigators, yet I gave no adequate study to the subject until recently, and have since applied the method to a few cases, one of which I here present.

Case: A white woman, aged 36 years, whose father is said to have asthma, and one paternal cousin is insane. She is thought to have developed as other children and been much as other girls. When seventeen years of age she began teaching a country school. Some three or four years later she took a position as bookkeeper, holding a fairly responsible position, remaining at one place until five years ago, at which time she was married.

Her mother and father are said have been very domineering and wanted to take the greater part of her salary. It is also said that they contrived various means to obtain money from her. This is thought to have made the patient suspicious of everyone and mistrust those about her. She herself stated that she had never any "real true friends," never confided in her mother, and made no confidants, which suggests that she is not an open personality.

When twenty-four years of age she was engaged to be married. The engagement was terminated abruptly, her fiance marrying another soon afterwards. Following this she worried a great deal, lost considerable sleep and was quite dissatisfied. When thirty years of age she met her present husband and was married one year later. She stated that she loved her husband until a few days prior to her marriage, and had she "given it more thought things might have been different."

Her husband's occupation took him away from home for a week at a time, during which time she often thought of her former lover and contrasted her position with what it might have been. In a measure the coming of her child two years after marriage satisfied her, but she has never understood her husband and referred to him as acting strangely. A few days prior to admission to the hospital her husband came home in the evening, and, contrary to the usual custom, no supper was ready. She offered no explanation and none was asked. Her child asked for something to eat, telling her he was hungry, and she told him to ask his father. Later he wanted to go to bed, when she again referred him to his father. This attitude was never before assumed by her. She paid little attention to her husband or child, but sat rocking. Suddenly she ran out of doors saying, "Farewell, farewell, my child." She ran to a neighbor's house and sat on his front porch. She then returned to her own porch, remaining outside. Her actions were so strange that the husband called the neighbor. She told the neighbor that her hus-

band had tied a tin can to their dog's tail and sent the dog to talk to her instead of coming to talk to her himself. During the next few days she laid in bed most of the time, took no interest in the welfare of the child and said that he had been poisoned because he was so heavy, and that her husband had doped him by wiping the child's face with a white handkerchief. Her commitment and journey to the institution elicited no comment or expression of surprise from her.

Except for being constipated no abnormal physical findings were demonstrated.

She was well oriented, recognized those about her, the character of the institution, and gave the date. She spoke of the strange actions of her husband prior to her marriage, but more particularly a few days before her admission. She said that everyone's actions seemed strange, evidencing considerable perplexity.

Previous to coming to the hospital her friends called her by telephone, which she understood as meaning that she was mentally well. Since admission she has commented upon a patient wearing a sash with two streamers, which meant "If you pull one it is right, if you pull the other it is wrong." She stated, there was an intention to antagonize in everything asked of her. She was inclined to find fault with the accommodations and to be displeased with her surroundings. A slight anxiety was noted but no particular press of activity was in evidence. She had at times the appearance of being depressed, especially during the mornings, this being only transitory and observed only occasionally. One was therefore inclined to believe that she presented no definite exaggeration of mood. She was anxious to go home and at times threatened to take the nurse's keys from her, although she never offered violence.

Her stream of mental activity showed many inexplicable features, ideas of reference, stereotypes of phrase and general looseness of association. She saw hidden meanings in the actions of the physician and patients and frequently spoke of the institution as being a "Board of Trade," as it changes frequently, and then spoke of her neighbor, who is engaged in the grain business. When asked if this neighbor is a friend of the family, she replied by asking if it was "a friend of the wife's?" and seemed to resent the question quite strongly. This man is the one who was called in the night of her queer actions at home.

She was not interested in any kind of work, did not assist with any of the ward work, spent her time idly, either lying on the bed or sitting about. At first an attempt to get her to make baskets was met with some success, though with resistance on her part, but later she seemed to lose interest in this. Repeated attempts to find her some occupation were met with disfavor. She did not write to her mother for some time, and did not inquire about her child, but stated that there were times when she felt quite anxious about him. He is now with her mother, and she suggested that his chances to become a great man were doubtful. When asked if she thought he

would become less lovable as time goes on she said it would be an awful thing for a mother to say. The feeling toward her child was not entirely clear, but suggested indifference. She stated that there were days when she felt indifferent, but did not seem to care, and again she was anxious about her home. The visits of her husband were met with considerable disapproval on her part, saying that they did her no good; she did not care to have him visit her, and she is unwilling to return home and live under the same conditions as formerly.

The classification of this case was dementia praecox. The word association test was applied in order to learn something of the types of reaction in this case and also to endeavor to discover the mode of development of her odd and peculiar reactions. Two hundreds words were given to the patient, but one hundred are sufficient for an illustration of the principal complexes. The main characteristics of the associations are the long reaction times and faulty reproductions with some rather odd and peculiar responses. The time in general was long, the arithmetical mean being 4.6 seconds, the probable mean being 3.9 seconds. 43 per cent were above 3.9 seconds. 45 per cent were correctly reproduced, while the remainder were faulty in reproduction or showed a long reaction time, suggesting that a repressed complex had been touched.

Many reactions showed the so-called definition type not unlike that observed in defectives. It is possible that to some extent the patient understood the words as a test of intelligence, and hence there was a tendency to give definitions.

An examination of the associations shows that there are several complexes more or less closely connected with one another and all more or less erotic. 11 per cent have to deal with dissatisfaction with domestic relations, 8 per cent erotic events prior to marriage, in which thoughts of another man figure prominently, and 12 per cent are of the sensual erotic character.

The word association test was given to the patient, and her reactions, the time and also her reproductions were recorded. Her reactions were again gone over and the patient asked to explain them by the free association method as far as cooperation would permit.

In an article of this character I realize how tiresome and tedious it would be for one to listen to a long recitation as the patient gives it. It will, therefore, be inadvisable to present all the material gained from her but I will endeavor to

show by examples that dissatisfaction with her husband and married life at least seem an important interest in her mind and therefore may have a strong bearing on her psychosis. She refers to her husband as acting strangely particularly a few days prior to admission and even a few days before her marriage. It would seem that she has for some time been preparing herself for such a crisis and being unable to cope with the situation as a compromise adopted the odd and peculiar reactions which led to her commitment.

1. Head leader—2.4"—3".

Refers to a wish to have someone lead her, or to have a leader of the family. She said later that she was "The business end of the contract." When spoken to regarding the reaction she referred to the "head of the government," and "that there should be more than one leader." She adds, "Seems that insanity is on the increase, and seems there should be some central figure between insanity and spunk." She afterwards explains "spunk" as temper; referring particularly to herself. She probably refers to the inability of her husband to understand her, and again, a wish that some central figure might be able to do so. She asks the physician if he is a Catholic, and comments on her brother being a Catholic, and wants to know if he employed the physician, and adds that she "does not want to be hired to do anything." This reaction then apparently expresses a desire on her part to have some leader, or "head of the government," for whom she would do things of her own desire, rather than be compelled to do things for convention's sake, for she adds, "Can't do as you want to, though, can you? Not always. Well, I have to consider other people." Her husband said that the patient has always had a quick temper, and would oftentimes make life almost unbearable by her constant nagging and fault finding, but at times he would do the things which he deemed right without consulting her. She frequently speaks of Catholics and Masons, and associated Knights of Columbus, K. C. with having "kept company" (K. C. again) with a certain young man who was a Mason.

2. Green; not ripe; not matured, probably will be better—2.4", not mature, 5".

In talking to her of the reaction she recalls it as immature, but it suggested human beings being green, and probably again refers to her husband being unable to understand her. "Some people are foolish, don't consider, don't know how, probably," after which she gives a long sigh. Some of our green people are good people, but should not be at the head of the government. They might lead up. I think some of our green people sometimes do some very great things. This obviously expresses the same dissatisfaction.

8. To plow; to turn over the ground—3"—3.5".

To her it means turning over, tearing up the ground,

and refers to a song she knew during her early life, the words of which, "The world is all ours, and we will turn back." After urging her to tell more, she says, "To a place where we first started." This refers to her wish to turn back to some particular time in life, and hesitatingly she adds, "I would not want to do that." It is quite probable that she wishes to turn back, and rather suddenly puts it from her. This has then a definite suggestion of compensation for the dissatisfaction and relates this complex closely to the second mentioned.

12. To carry; to pack—10". Pack—2.2".

To her it suggested a burden, "The burdens of life. Mine has been a hard one." An excellent illustration of her dissatisfaction.

14. To dance; to skip about—4"—3".

This "skipping about gracefully," and she says that she likes a graceful person, and thinks that graceful people are not always the best, "but they are those who can act and look well under circumstances, who can smooth things over. I know I am not graceful. I don't act angry but provoked sometimes." She here uses the word graceful in the sense of a good adjustment under trying circumstances, referring to herself and her conduct, but means I am as good as anyone, even if my actions have not looked well under certain circumstances.

24. Blue (failure)—6". Color—1.8"—2.

Recalled her disposition on general feeling, after which she gives a long sigh, and speaks of, dark blue being dressy, and after considerable pause and hesitation, as though encountering some emotional difficulty, says that pale blue brings to her mind "a shade that has gone through a great deal and has faded." It is to be remembered that her hair is quite gray, that people have told her she looks old, hence, "I feel blue and have gone through a good deal."

84. False—5"—3".

She thinks of things that happened that should not have happened, and that she knows things that she would have been a great deal better not to have known, and prefers to have been less wise." People presume that my charity is all for my people." "Not but that I respect the government and all that. I think everyone should do what they could for the government—in other words, I think charity begins at home." Recalls how a patient who attended church wore a girdle with two streamers, meaning that "strings were tied to this" so that if you pulled one string it meant right and the other wrong, and immediately comments upon the place being a lack of love. That "no one lonesome here"—and that her past life is false. This relates to her home life, which was not as she wished, but that she should be more "charitable" toward her husband, but how can "I" when it is all wrong and that love does not exist, hence "my" whole life is false.

The above examples are sufficient to illustrate how she is dissatisfied with her married life and the social status in which she finds herself. The

refusal to get the usual meal for her husband and son, indifference with which she treated them, her distaste for her husband's visits and the unwillingness to return home and live under the same conditions, become entirely clear when her dissatisfaction is grasped. Her attempt to leave him suddenly by running away can similarly be explained.

The thought that her child was poisoned because "he felt so heavy" and because "her husband had wiped the child's face with a handkerchief," unaccompanied by the emotion usually associated with such thoughts, leads on to believe that she hereby expressed the wish that he might be poisoned, for by his death she would be in a better position to gain a separation from her husband and possibly greater conjugal happiness.

As further evidence of this when it was suggested that the child might become less lovable as time goes on she comments that it would be an awful thing for a mother to say, and makes no further remarks regarding it, nor does she display the emotion one would expect.

The utter indifference toward her child, the refusal to attend on him, the failure to enquire about him may all be explained upon this basis.

The sudden leaving of her home, the running to her neighbors was an attempt at separation. The expression "Farewell, farewell, my child" shows that he was a factor in keeping her from an attempt at separation before this. The telling of her neighbor that her husband had tied a tin can to the dog's tail and sent the dog to talk to her instead of coming to talk to her himself is difficult to explain. As a matter of fact the husband had some time previously tied a can to the dog's tail; she may regard this in the light of her husband's desire to be free from her.

In the next group of associations I will endeavor to show that various incidents of her past life seem rather prominent in her thoughts and intimately associated with the preceding group.

It is to be regretted that more has not been obtained. It would be well before presenting the illustration to state that at the time of meeting the fiance who disappointed her, she was at a picnic. He took her and her sister's child for a row in a boat.

7. Ship; sailing vessel—5.4". Vessel—3.6".

This reaction results "going along smoothly," and she thinks of her mother and her father, who were shipwrecked. She also refers to a certain outing, in

which things seems to have "gone smoothly" with certain individuals and cautions the examiner not to take names, and to keep it a secret. A wish that things might have gone as then.

11. Table (failure)—15". Ah! Table —6".

She refers to an operating table, and tells of having visited her sweetheart, who was then studying medicine, and who showed her an operating room. She then refers to other journeys, and adds that the doctor (her sweetheart) is in things a great deal.

35. Sail; swim—5". To sail—3.2".

To her it recalled "go along smoothly." She does not think that she goes along smoothly and does not believe that many persons do. When told that her answer is swim, she says that "one may swim along smoothly." It may be now for pleasure (if things had gone smoothly), it may be for heroic deeds "I should have gone along smoothly" (probably referring to her failure in grasping happiness then, and how she meets them as heroic deeds.)

23. Journey; distance traveled—3". Travel—2".

Little is obtained from the patient regarding it, as she says, "Oh, I don't tell all my thoughts. You know as children we were taught to be seen and not heard, and I never was a person to talk much." This is an example of her attitude and gives one a general idea as to the difficulties encountered in attempting to analyze a case of this sort. She speaks of there being a change in time which to her means things are not progressing. "East is earlier than West." She does not explain this, and one may attempt to supply many versions of it. She speaks, however, of a trip through the East, but nothing definitely is obtained.

38. To ride; not to walk—5"—2.6".

She refers to riding of different kinds—horse and buggy, automobile and train, and, "For water, I thoroughly enjoy riding on water." As she has never lived near any stream, it seems striking that she should lay such stress upon the riding on water. It becomes intelligible when one considers reactions No. 7, No. 22, No. 29 and No. 35, and the associations with her former sweetheart.

57. To meet; come together—3.6"—2".

She encounters considerable emotion, after which she says, "coming together." It seems to belong to the same complex with No. 54, No. 55, and refers to the previous meetings when all went "sailing smoothly."

22. To swim; sail—3". Sail—2".

Belongs to the same group as No. 7, going along smoothly, etc.

55. Woods; well, a body of trees—3.4". A body of trees—3".

Here speaks of a creek which ran through the woods near where she lived. Recalled again the water scenes, the first indicator being No. 7.

The patient being dissatisfied with her husband, unhappy and discontented, compensates herself by thinking of her former lover, builds

castles in the air, imagines what "might have been" had she married some one else. The pieñe scene comes in frequently and stands as a symbol for this imagined happiness.

All of these are closely associated with and seem to overlap the associations dealing with domestic dissatisfaction.

The association method in this case has shown that it affords one a better understanding of the patient. We readily see that this patient has failed to meet the conditions of her married life, is disappointed with her husband, and the social status in which she finds herself. Beneath her daily activities there is a variety of internal dissensions quite incompatible with that feeling of satisfaction which goes with good adjustment. The patient has been unable to readjust her hopes and wishes to accord with the actual facts of life, but has resorted to reverie as a means of compensation. There is no practical effort to alter the condition by separating from her husband, or some other means. Instead she becomes querulous and fault finding and suddenly turns upon the situation an attitude of indifference, busying herself with castles in the air of "what might have been," high flowing phantasies expressed by "head of government" and such like terms.

I am greatly indebted to Dr. H. Douglas Singer, Director of the State Psychopathic Institute, for kindly assistance.

The patient returned home, not to live with her husband but with her mother. Her mental condition was stationary.

A dip and a guess, perhaps given with a silent prayer, is about all some soda fountain employes give to the matter of cleaning spoons and glasses. Don't buy of dirty people.

Don't use a common cigar cutter when you clip the end of your cigar. It is possible to transfer sputum from the man who precedes you. He, quite likely, moistens the cigar in his mouth, then clips it in the common cutter. If you follow him, in the same manner, you are taking chances.

If your butcher expectorates on the floor of his shop, tolerates flies, puts his thumb in his mouth and moistens it each time he reaches for paper to wrap your meats, it is high time you stopped trading with him. If a butcher is not clean about his meats, he does not deserve your patronage.

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OCTOBER, 1914.

Editorials

THE ALIENISTS AND NEUROLOGISTS.

The enormous number of the mental deficient in our state institutions and at large, is so appalling, that it behooves us to stop to reflect, to think seriously and profoundly of what the outcome will be.

The Alienists and Neurologists of the United States have made a start in the right direction, realizing that results can only be obtained by concerted effort. To this end they have held three annual meetings, under the auspices of the Chicago Medical Society. The last of these meetings, held July 13-17, 1914, inclusive, was a truly national affair. About thirty states sent official representatives to attend this congress. One would have to be present to appreciate the interest and spirit of the assembly.

The community should be protected by the state against this menace of degeneracy. Millions are spent for care and cure, nothing for prevention. In other lines of medical effort, prevention rather than cure is the first step in the right direction. In order to find a preventive, one

must learn the causes. The papers read at this meeting, discuss every phase of mental diseases, and may be considered the latest and most up-to-date contribution to these subjects.

The ILLINOIS MEDICAL JOURNAL, realizing the importance of the work of this medical congress, has given over the entire October Issue to the publication of the papers read together with the discussions. Our readers are very fortunate in this way to obtain the complete proceedings of the meeting in one volume, and it is a rare addition to the doctor's library.

ACTIONS FOR CIVIL MALPRACTICE.

Second Article.

ROBERT J. FOLONIE, LL. B.

CHICAGO.

The increased number of unwarrantable actions for malpractice within recent years is, in part, due to causes beyond the control of the physician.

Such causes are more or less sporadic and present new and varying factors from time to time.

Prominent among such causes at the present time is the trend of legislation of a paternalistic type. In Illinois the act providing for compensation to injured employees was followed so immediately by a large number of baseless malpractice claims as to preclude any inference that it was a mere coincidence.

It is doubtful that there was opportunity in so limited a period for these suits to have been outgrowth of a feeling of lessened responsibility on the part of the working man, unless it may be assumed that the previous agitation had created such a spirit before it was put into the form of legislative enactment. It is more likely that these claims were precipitated through the loss of practice of lawyers accustomed to handling suits for personal injury against employers, who, in a state of panic, finding their means of livelihood abruptly taken away, scampered for other pastures, no matter how scanty their verdure. Of more importance to the actively practicing physician is the ultimate result after the sense of newness has worn off.

The beneficent effect of legislation of the type indicated within reasonable limits is generally conceded by students of sociology. Those upon whom its attendant but inescapable results fall must bear it with patience.

Almost every social revolution bears heavily on the members of the learned professions, and these increasing evils we must bear with as much fortitude as possible, until eventually the practice of medicine will become primarily a profession under governmental control.

There can be no doubt that the selection of the physician to attend the injured employee without the consent of the servant and quite frequently at the instance of the Casualty Co. insuring the employer, does not create the feeling of trust which is felt when the physician is of the patient's own selection.

The lessening of the personal equation without any corresponding regulation by the state leaves the physician the subject of suspicion and often of antagonism which must prove a great hindrance in effecting a cure and also increasing the likelihood of claims of malpractice.

A large number of suits have already been instituted against physicians (some at the instigation of employers or their insurers) and suits commenced by the employee against the employer, claiming malpractice of the physician designated by the latter.

It is regrettable to record that in many cases where compensation is sought from the employer by the employee, the defense of malpractice is interposed, not in good faith, but as a club to secure reduction of the physician's bill or to cause it to be withdrawn.

It is to be borne in mind as a practical procedure, that under the Illinois Compensation Act, the employer is not responsible for hospital bills and physician's bills in excess of \$200.00. This amount is the limit of jurisdiction of a justice of the peace, and no cross demands can there be filed in large amount to frighten the physician.

It has been a frequent experience of physicians suing for bills in other courts, that upon presentation of a claim for a comparatively small amount, is met with a counter-claim of \$10,000 and even more, thereby precipitating a suit which most often has no legitimate basis in law or fact, but which cause the physician so much concern as to prove more than an irritation.

So many actions for malpractice are precipitated through a desire of the patient or person responsible for the bill to escape its payment, or reduce the amount to be paid, that a separate

article will be devoted to the question of charges against clients and their relation to the making of claims for civil malpractice.

THE NEO-MALTHUSIANS.

A book which should prove of interest in connection with the papers read at the meeting of Alienists and Neurologists is the small volume by C. V. Drysdale, "The Small Family System, Is It Injurious or Immoral?" Published by B. W. Huebsch, New York, 1914.

The author prefaces his study of this subject by defining his method as follows: 1. Ascertaining the opinions of medical authorities and moralists; 2. Considering the conduct in this respect of these authorities themselves; 3. Studying the course of the health and morality of the community as the limitation of families has become more general.

To clear the field, like a good general, he notes that the opponents of family restriction generally confuse the use of preventive measures with eebolics—to which, of course, he is as much opposed as anyone.

He endorses the dictum of Dr. W. J. Robinson that the three most important measures for the improvement of the human race are: 1. Teaching the people the proper means of the prevention of conception, so that people may only have as many children as they can afford to have, and have them when they want to have them; 2. Demanding a certificate of health for a marriage license; 3. Sterilization of all degenerates, imbeciles and vicious criminals.

The "moral restraint" advocated by certain clergymen he dismisses with the criticism that the clergy, as a class, do not practice what they preach in this respect and calls attention to the almost universal small family of the clergy as well as physicians now as compared with former times.

A. Newsholme, the great English authority on health and vital statistics, is quoted as follows: "Little advance can be expected in *morality* until the producing of large families is looked upon in the same light as drunkenness or any other physical excess."

Bertillon, the French authority on health statistics, deplored the low birth-rate of France, but with singular inconsistency said that the few cantons which maintained a high birth-rate were

sunk in poverty and debauchery, and that the infant death-rate was enormous. Bertillon, moreover, said that the greatest decency and the lowest rate of illegitimacy are found where the birth-rate is lowest.

The author's main argument rests on a study of the birth and death-rates of numerous countries which show a uniformly high general and infant death-rate when the birth-rate is high, so that the net increase of population is uniformly greater with a lower birth-rate and its accompanying low death-rate.

Australia, and especially New Zealand, where the use of preventive measures is openly advocated, or at least not opposed by the authorities, have the lowest death-rates of all. Ontario, on the contrary, has had an actual increase in the birth-rate since 1876, when the rate began to decline in almost every other country, but in spite of this increase, the population has not increased on account of the greater death-rate.

The author quotes from a review of Mr. Roosevelt that "the rate of natural increase in New Zealand is actually lower than in Great Britain, and has tended steadily to decrease." But Dr. Drysdale affirms that the excess of births over deaths is nearly double that of Great Britain and has also been growing steadily of late years, and he predicts that the death-rate, which has fallen from 22 to 13.3 per 1,000, since the birth-rate began to decline, will fall to 10 by the year 1921, if the birth-rate falls to 20 per 1,000 as it appears likely to do. When that time is reached it will mean that *there is practically no premature death from actual want of the necessities of life*, or, in other words, that poverty in its worst sense is abolished. It is equally certain that if the educated classes of the community realized their duty in this matter, and would help in bringing about restriction of families in the places where it is most required, the death-rate could be brought down to 10 per 1,000 *within five years*. Yet during these five years there would probably be a greater increase of population than at present, since we should be checking the supply of ineffectives rather than that of effectives.

In a word, the author argues that the millennium with its absence of degeneracy, crime, disease and immorality, will only come with the universal adoption of the "Small Family System."

PROGRAM SOUTHERN ILLINOIS MEDICAL ASSOCIATION.

FORTIETH ANNUAL MEETING. MT. VERNON, ILL.
NOVEMBER 5 AND 6, 1914.

All sessions will be held in the First Methodist Church, Main and Twelfth Streets.

C. W. Lillie, president, E. St. Louis; W. E. Lingle, first vice-president, Cobden; T. H. D. Griffiths, second vice-president, Springfield; A. B. Capel, secretary, Shawneetown; J. W. Armstrong, treasurer, Centralia.

A cordial invitation and hearty welcome is extended to all by the Jefferson County Medical Society.

First Day. Forenoon Session. 10.30 a. m.

Calling meeting to order, by President Dr. C. W. Lillie, E. St. Louis.

Address of welcome, by Dr. J. H. Mitchell, President of the Jefferson County Medical Society.

Response by President C. W. Lillie.

Reading minutes of the 39th annual meeting.

Report of committees.

Appointment of committees.

First Day. Afternoon Session.

SCIENTIFIC PROGRAM.

1. Pneumonia. W. A. Brandon, Carbondale.
2. The Relation of Tubercular Infections to Gynecological Affections. A. J. Butner, Harrisburg.
3. A Plea for a Small Incision in Abdominal Surgery. R. F. Stanton, E. St. Louis.
4. Some Peculiarities of Typhoid, With Report of Cases. I. A. Foster, State Sanitary Inspector, New Haven, Ill.
5. Head Injuries. H. C. Mitchell, Carbondale.
6. Reminiscence of Twenty Years' Country Practice. What Will the Future Be? W. E. Lingle, Cobden.
7. Club Foot. Illustrated With Lantern Slides. E. L. Cooley, St. Louis, Mo.
8. Lacerated Perinaeums and Their Treatment. Robt. E. Wilson, St. Louis, Mo.
9. The Duty of the Physician in All Contagious Diseases. J. J. Hassett, Member State Board of Health, McLeansboro.
10. Functional Stomach Disturbances. F. Buckmaster, Effingham.
11. Comparison Between Ideal and Actual Obstetrics in Country Practice. E. H. Lane, E. St. Louis.

Evening Session. 7.30.

Calling Meeting to Order.

Music.

Invocation. Rev. C. C. Hall, Mt. Vernon.

President's Address. "Relation of the Doctor to the Public." C. W. Lillie, E. St. Louis.

Music.

The Causes of "Catching Cold." A. M. Corwin, Chicago.

Immediately after this session a smoker will be given by the Jefferson County Medical Society at the Elk's Hall in honor to Drs. Frank M. Agnew, John McLean, James I. Hale and Geo. S. Rainey. The first three are charter members of this society, the

only ones living. Dr. Rainey has been an active member since the second meeting of the society. Everyone will be "a jolly good fellow" at this entertainment.

Second Day. Morning Session.

12. The Conservation of Hearing. Illustrated. E. E. Edmondson, Mt. Vernon.
13. Pathologic Conditions Whose Origin May Be Traced to the Tonsils and Adenoids, as the Primary Foci. C. F. Burkhardt, Effingham.
14. Needs of Medical Legislation. J. A. Womack, State Senator, Equality.
15. The Relation of Adenoids to Mental Deficiency. A. M. Corwin, Chicago.
16. The Prevention of Insanity. E. W. Feigenbaum, Edwardsville.
17. Some Methods That Have Reduced the Mortality of Prostatectomy. Edwin Walker, Evansville, Indiana.
18. Effects of Goitre and Results of Removal on the Circulatory System. E. P. Sloan, Bloomington.
19. Treatment of Empyema. J. L. Wiggins, E. St. Louis.
20. Intestinal Stassis. Olney A. Ambrose, St. Louis, Mo.
21. Treatment of Gonorrhea and Some of Its Complications. Floyd Stewart, St. Louis, Mo.
22. A Blood Picture Diagnosis. P. B. Rabeneck, Nashville.
23. Ectopic Gestation. With Report of Cases. Andy Hall, Mt. Vernon.
24. Laboratory Aids in Diagnosis of Diseases of the Nervous System. D. S. Booth, St. Louis, Mo.

Second Day. Afternoon Session.

1. Reports of the Secretary and Treasurer.
2. Election of Officers.
3. Selection of Meeting Place for 1915.
4. Presentations of Resolutions.
5. Formal and Informal Discussion and Action.
6. Adjournment.

Papers read at this meeting are limited to fifteen minutes in delivery, except by consent, and ten minutes allowed each speaker in discussion.

Papers are considered the property of the Association and a copy should be handed the Secretary for publication.

Reports of the Board of Censors on Applicants may be received at any time at the pleasure of the President and action taken on same.

Absence of an essayist at the time his paper is called places his paper last on the program for that day, but this order may be changed by vote of the Association. By special arrangement the time for papers may be changed by mutual consent of those on the program. This, however, is left with those whose time might conflict with that desired by some other member.

Now is the time when the pesky flies are most anxious to get into the warmth and comfort of your home. Keep them out and swat them hard.

HOW MEASLES SPREADS.

All medical men know that measles is highly contagious during the pre-eruptive or catarrhal stage. They also know that the early symptoms are those attending the onset of a severe cold. Here is a little story taken from the reports of the U. S. Public Health Service for Aug. 14, 1914, which illustrates how the disease spreads:

A Kansas farmer went to Kansas City with a car load of live stock. Nine days later he had a "bad cold." He went from store to store in the little town where he lives, telling everybody what a terrible cold he had. On the third day after his return home the eruption occurred and his physician tacked up a measles sign on the house. But the farmer had been quarantined too late. The mischief had been done. Two weeks later 28 of his friends who had listened to his "bad-cold" stories had come down with measles. Inside of another two weeks, 28 other cases; and two weeks later 30 more, making 86 in all, a fair-sized epidemic for a small town, from the farmer's one case of "bad cold."

But this is not quite the end of the story. One of the first crop of 24 cases at A., visited at the home of a friend in the city of B. The friend, not knowing his child had been exposed, permitted it to attend school. In due course it "broke out" with measles, and from this case the disease spread to 43 other families, with a total of 90 cases in that town. A visitor from the city of C. visited in the town of A., came back to C., and was the source of 100 cases there. From C. the epidemic spread to D., where there were 30 cases, making in all a total of over 300 cases originating with the farmer who had "such a terrible cold."

The moral is that if the man had stayed at home and taken care of his "cold," as he should have done, hundreds of dollars in loss of time and wages and demoralization of school work in four different towns would have been averted. The writer in the *Public Health Bulletin*, in closing his account of the epidemic above described, makes this pertinent observation: "Which pays best in the community: the restriction of one individual in spite of his yells for personal liberty and medical freedom, etc., or the loss of time and money and the suffering of several hundred persons?"

Just now there are some would-be agitators who are terming the talk about the value of fresh air as only a fad. All very good. But if the agitation for fresh air is only a fad, what have these fault-finders to say as to the bad air and its effect on the health and comfort of those who are compelled to breathe it? In other words, might we ask, what is there faddish about insisting that our indoor conditions be made, as nearly as possible, as good as those obtaining out of doors under sun and sky.

Overeating does not always satisfy the appetite. Moral, don't stuff, eat enough and no more.

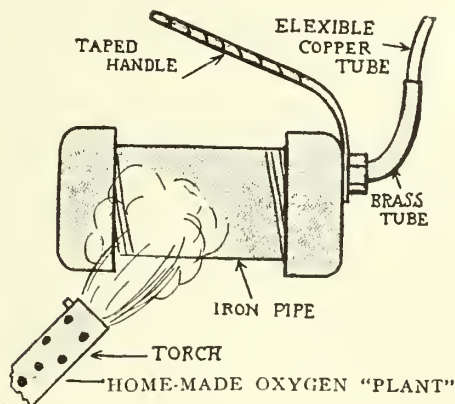
Auto Sparks and Kicks

HOME-MADE OXYGEN PLANT DECARBONIZES CYLINDERS.

Cheaply Made Generator That Makes Oxygen from Cheap Chemicals—How the Device Is Constructed and Operated.

The chief requisite in the process of decarbonizing motor cylinders with oxygen is, of course, a supply of the gas; and as oxygen is readily produced by the application of heat to chlorate of potash, which is cheap and can be obtained from any druggist, anyone can make his own oxygen generator with little trouble and little expense.

The "generator," which is shown complete in the accompanying illustration, consists of a short length of ordinary wrought iron pipe, 1 1/4 inches in diameter, threaded at both ends and fitted with



two caps; one of the caps is drilled and tapped for a length of stout brass pipe. Into the outer end of the brass pipe is soldered a length of annealed copper tubing. The other iron cap is left intact. A handle may be attached in any convenient way; the illustration shows a piece of strap iron with a hole in one end to slip over the brass pipe, a nut holding it in position. A winding of tape or asbestos may be added.

The chemicals required for a small charge are two ounces of chlorate of potash and a tablespoonful of manganese dioxide, the purpose of the latter being to stimulate the decomposition of the chlorate of potash. The proportions need not be exactly adhered to. The two are thor-

oughly mixed and put into the generator through the back cap. The application of a blow-torch flame to the iron pipe will soon heat the chemicals sufficiently to produce a flow of oxygen through the copper tubing, which should be of the proper length to reach into the cylinder, of course.

In the presence of the oxygen the carbon is easily ignited with a match, and it will continue to burn until it is all consumed. The heat should not be too intense, and it should be as steady as possible to ensure a steady flow of the gas. The chlorate of potash should be kept carefully out of contact with any other substance when not being used.

CAUTION.

Never attempt to burn carbon out of the cylinders until the gasoline has been shut off between the gas tank and the carburetor, so as to prevent the fire from passing through the supply pipe into the gasoline storage tank.—*Motor World*.

CEMENT GARAGES.

We are in receipt of several requests for practical data on constructing cement garages, cement floors exterior decorations, etc., we will endeavor in forthcoming issues of the *JOURNAL* to give as many practical suggestions along the line indicated as the limited space devoted for this purpose will permit.

CEMENT FLOOR FILLER.

20 lbs. boiled linseed oil.

40 lbs. dry white lead.

40 lbs. Portland cement.

Thin with turpentine or mineral turpentine to work freely with brush.

CEMENT FINISH—EXTERIOR USE.

60 lbs. Gilder's whiting.

30 lbs. Kaolin.

4 lbs. powdered hydrated lime.

9 lbs. powdered casein.

Mix thoroughly.

Keep in sealed packages until wanted for use. For colors, tint as desired with lime and alkali proof colors; mix with water, preferably hot, to the right consistency to brush out properly. Let stand one-half hour or longer before using.

Society Proceedings

ADAMS COUNTY

Annual Outing, August 10, 1914.

Instead of holding a regular business meeting August 10, the Adams County Medical Society had their annual outing at Big Lake Hunting and Fishing Club on Monday, August 17. About thirty physicians were in attendance.

The feature of the day was an excellent dinner, served about 1 p. m. Everything tasted just right, and the place was very quiet until about 3 o'clock. In spite of the extreme heat, the medics played a good game of baseball, but it was impossible to reach a decision as to which side was victorious. Everybody had a fine time and much credit is due the committee which had charge of the affair. Drs. Center, Irwin and Pittman were given a vote of thanks and the hope was expressed that they would be members of the entertainment committee next year.

Regular Meeting, September 14, 1914.

Adams County Medical Society met in regular monthly session on Monday, September 14, at the parlors of the Hotel Newcomb. Meeting was attended by about twenty members. The guest of the society on this occasion was Dr. Frank P. Norbury, alienist board of administration of Springfield, Ill., who addressed the members on the subject of "Exhaustion Psychoses."

The doctor presented a very interesting paper, one showing ability, much thought and careful planning. He spoke at length on the various phases of exhaustion, also giving diagnosis and treatment; told his personal observation of various cases and the results from different methods of treatment.

The paper was thoroughly discussed and many expressed their satisfaction and appreciation.

Before adjourning a vote of thanks was given to Dr. Norbury for his kindness in coming and also for his excellent paper, and the wish voiced by all that he might visit the society again in the near future.

ELIZABETH B. BALL, Secretary.

WINNEBAGO COUNTY

The Winnebago County Medical Society met at Nelson Hotel, Rockford, September 8, 1914, Dr. E. E. Ochsner in the chair. Members present, nineteen. Minutes of previous meeting were read and approved and the following program was rendered:

Dr. Ranssen presented a case of chronic sciatica treated successfully by injection of 3.5 ounces of normal salt solution into the nerve at freezing temperature.

Dr. Gill reported two interesting cases: One was that of a lady with two uteri and a divided vagina; the other was a case of double extra-uterine pregnancy.

Dr. Tuits reported three cases of pyelitis compli-

cating pregnancy, all on the right side. Recovery occurred in all with vaccine and urotropin treatment. Dr. Gill also reported three cases occurring on right side.

Dr. Eakin reported a case simulating mild infantile paralysis for diagnosis.

Dr. Daniel Lichty of Rockford was next called upon as the speaker of the evening. Dr. Lichty's subject was, "The Flag and the Doctor." It being the centennial anniversary of the writing of the hymn, "The Star-Spangled Banner," the society had the pleasure of listening to an able historical paper. The speaker brought out the fact that the composer of the national hymn had gone to the British fleet to rescue a physician, Dr. Beane of Baltimore, and his remaining on an English vessel during the bombardment of Fort McHenry furnished the inspiration for the song. The chairman extended to Dr. Lichty a vote of thanks for his very able essay.

A report was read by Dr. Lofgren of the State Medico-Legal Committee.

The president appointed a committee of three, Drs. Lichty, Hatch and Penniman, to formulate resolutions of sympathy upon the recent death of Dr. Leo O. Scott.

It was moved and seconded that from now on the fee for a normal delivery should be \$25.00. Motion carried.

It was moved and seconded that the president appoint a committee of three to revise the old fee bill and report at next meeting. Motion carried. The chair appointed Drs. Weld, Lakin and Tuits.

Adjournment.

DR. RANSEEN, Secretary.

McHENRY COUNTY

Meeting called to order in the Harvard Cottage Hospital at 10:45 a. m., Friday, July 31, 1914. Dr. Chas. C. Peck, vice-president, in the chair, President Dr. A. B. Smith being incapacitated by a Potts' fracture.

Minutes of the last meeting read and approved as read.

An interesting talk was then given by Dr. C. W. Goddard, local C. & N. W. R. R. surgeon at Harvard, on the subject of "Accidental Injuries," with reports of cases and demonstration of instruments devised by the doctor.

There being no further business the meeting adjourned, following which a pleasant dinner was held at the Ayers Hotel.

Regular Meeting, Aug. 28, 1914

Meeting called to order at 10:45 a. m. in the Marengo City Hall, August 28, 1914, by the president, Dr. A. B. Smith. Present were Drs. Smith and Francis of Woodstock, Eshbaugh, Richardson and Gooder of Marengo, Peck, Goddard, Seelye and Johnson of Harvard, Statler of Huntley, Pillenger of Algonquin, and Dewey, Scatliff and Mann of Elgin.

Minutes of the last meeting were read and approved as read.

The secretary then read a communication from Dr. C. S. Ambrose, secretary of the Lake County Medical Society, suggesting that this society hold a joint meeting with them in the near future at McHenry.

Moved by Dr. C. C. Peck that this society meet with the Lake County Medical Society as suggested, date to be arranged by the secretaries and that the ladies be invited. Motion duly carried.

A highly interesting paper was then read by Dr. Mann, the following abstract of which was kindly furnished by the doctor:

THE PLEOMORPHIC ASPECTS OF THE DIPHThERIA BACILLUS.

A. L. MANN, M. D.,

City Physician, Elgin Illinois; Chief of Staff, Larkin Children's Home, Elgin, Illinois.

Placing diphtheria near the top of the list of "wanton murderers of the human race," and referring to the heavy expense and inconvenience incident to fighting the enemy by quarantine, the writer makes a plea for a positive demonstration of the causative organism in all cases of anginas accompanied by a pseudo-membrane, demanding that the diphtheria bacillus be conclusively identified and shown to be present before a positive diagnosis of diphtheria be made, in order that the expense and inconvenience of quarantine may be avoided in non-diphtheritic cases.

The writer submits the claim that there are two distinct types of diphtheria organisms which should be recognized as such, viz., 1. The irregularly club-shaped pleomorphic organism of Klebs-Loeffler, and 2. the distinctly uniform organism of Neisser, showing invariably a typical polar granulation when stained by Neisser's technique.

The claim was supported and supplemented by microscopical exhibits of specimens of the two types, which were recovered in culture from a series of coincidental cases, and which were remarkably convincing as well as interesting.

As tending to show the difficulty in recognizing the organism from text-book descriptions, six prominent authors on bacteriology and laboratory technique were cited with most confusing results.

In concluding the writer pleads for, 1. cultures from every case of tonsilad, pharyngeal or laryngeal angina, 2. the recognition of two distinct types of organisms as being diphtheria bacilli, the presence of either of which justifies and demands quarantine and the use of anti-toxin, 3. the invariable use of Neisser's stain as a primary procedure, to be followed by Loeffler and Gram if still in doubt, animal inoculation not being considered here owing to the time limitations of the clinical emergency.

A lively discussion by Drs. Pillinger, Francis, Goddard, Johnson, Curtis, Smith, Seelye and Mann followed.

Meeting adjourned.

N. L. SEELYE, M. D., Secretary.

COOK COUNTY

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular meeting held March 17, 1914, with the president, Dr. Otto J. Stein, in the chair.

REPORT OF A CASE OF NECROSIS OF THE SUPERIOR MAXILLA WITH A SEQUESTRUM CONTAINING THREE INCISOR TEETH WHICH LOOK EXTERNALLY AT LEAST TO BE NORMAL.

Dr. L. W. Dean, of Iowa City, Iowa, reported this case. The sequestrum was produced in a very unusual manner. The patient, a female about seventeen years of age, gave a history of having had her teeth regulated. This regulation had been carried on for nine months preceding the time that the patient came into Dr. Dean's care. The specimen shows around the roots of the three teeth near their apices an elastic band, of the kind which orthodontists use in reglulating teeth. The band had evidently been forgotten or lost, and had wandered down along the roots of the teeth to near the apices and produced the sequestrum.

EXHIBITION OF SPECIMEN OF BRAIN SHOWING NOTHING EXCEPT A SMALL TEMPORO-SPHENOIDAL ABSCESS.

Dr. Dean reported the case of Mr. B., white, aged thirty, admitted to the University Hospital on January 13, 1914. The patient had suffered from chronic otorrhea in the right ear for nine years. About a month previous the patient had had an attack of dizziness, which was not accompanied by vomiting or headache, and since then he had had several dizzy spells. Examination showed the eyes to be negative; ears: right, no hearing, tympanic membrane destroyed, canal filled with pus, tympanic cavity contains granulations, caloric negative; left ear negative. Examination of blood: Leucocytosis, 10,400; polynuclear count, 76 per cent. Physiological nystagmus to the left and right. Station: Patient falls to the right, regardless of the position of the head. Pointing test: With the right hand to the right; in the absence and in the presence of an induced nystagmus, to the right. Left hand normal, in the presence of an induced nystagmus points to the left. Operation on the right mastoid, January 14th—temporo-mastoid extenteration. Cortex of mastoid eburnated. Large area of necrosis around the antrum. There was a large perforation in the inner table of the middle fossa. Labyrinthectomy was performed, discovering a large fistula in the semicircular canal. The seeker introduced into the fistula readily entered the vestibule. The bone in the solid angle was soft and necrotic, the necrosis extending to the posterior fossa. The bone was removed to the dura, exposing it in the posterior fossa anterior to the sinus and in the middle fossa over the tegmen antri.

Following operation the patient has slight facial paralysis; no symptoms; pointing test was normal

with right and left hands, and the station was normal.

On February 13th the patient complained of headache and being dizzy. On February 14th there was much pain in the head, some rigidity of the muscles of the neck, no Kernig, no muscular twitching, reflexes normal. Blood count: leucocytosis, 23,000; polynuclear of 79 per cent. Lumbar puncture showed slight pressure. Examination of spinal fluid: Fehling's solution not reduced; Noguchi globulin positive; cell count, 9,000 per cubic millimeter. Subdural drainage was performed. For several days the patient's condition was very much improved. On February 19th the patient became worse and died of meningitis. On autopsy, a small abscess in the temporo-sphenoidal lobe was reported, about the size of an acorn, which had ruptured into the meningeal space, and general diffused septic leptomeningitis, most marked in the middle fossa on the right side.

The interesting things in this case were: Were these cerebellar symptoms the result of some change in the posterior fossa, or were they secondary to the brain abscess in the temporo-sphenoidal lobe? Dr. Dean thought the symptoms were due to a collection of fluid between the dura and the cerebellum that was secondary to the labyrinthian lesion which was removed, or at least had its pressure dissipated by the bony decompression operation that was performed when the labyrinth was operated.

Dr. Dean then reported a second case of brain abscess, as follows: Mrs. B., white, aged 52, admitted to University Hospital, February 3, 1914. For the past three or four years the right ear had discharged at times, the last time in the late fall. Patient said that she had had terrible pain in the temporal region, just above the ear, all the time. Examination: Patient moans and complains constantly of terrific pain in the head. Mental condition very poor. Constantly agitated and suffers from a delusion of unpardonable sin and being in the power of the evil one. Examination of the eyes negative, except for a neurotic atrophy of the right optic nerve, with a vision of six-ninth in that eye. Examination of the ears: Right ear, whisper heard at ten feet, drumhead scarred and thickened; positive caloric. Left ear, examination negative. X-ray of mastoid shows eburnated bone, or mastoiditis on the right side. Examination of blood showed a leucocytosis of 12,000, with a polynuclear count of 76 per cent. Urine and spinal fluid negative. Diagnosis: Chronic mastoiditis with extradural abscess or cerebral abscess.

Operation, February 6, 1914, mastoidectomy. Cortex of the bone hard and eburnated, tegmen antri and mastoid cells posterior to the antrum necrotic. The dura was exposed in the middle fossa and found bulging and covered with rough granulations, but not under increased tension. In hunting among the granulations a small opening in the dura directly over the tegmen antra was found. On stretching this opening no cerebro-spinal fluid escaped. Some of the brain substance removed from the inner sur-

face of the dura with the curette showed pus cells, necrotic tissue and streptococci. Material removed from the depth of one-half inch in the brain gave the same findings. The diagnosis was made of brain abscess with discharging through the dura. The sinus was slightly enlarged and a plain piece of gauze inserted three-fourths of an inch into the brain. Following operation the patient's condition was somewhat improved, but she still complained of the pain in her head, and the result was unsatisfactory. The temperature, which had been ranging from 99° to 101.5°, continued the same. Ten days after operation, because of temperature of 100° remaining, and because of the patient's general condition not improving, a second exploration of the brain was made. Following the same pathway, at a depth of two inches, an abscess cavity was opened. From it fully an ounce of pus escaped. A gauze drain was inserted.

Following this procedure the temperature returned immediately to normal, the pain disappeared, but the patient's maniacal condition persisted. A colleague saw the case and made a diagnosis of melancholia, with the cerebral infection only a contributory factor. It was found impossible to drain the abscess cavity thoroughly with a gauze drain, and on March 20th a rubber tube was inserted. At present the tube is in position, but there is no discharge of pus. Outside of the mental condition, the patient is practically normal.

Dr. Dean then reported the case of Mr. B., white, aged 51, seen in consultation on March 9, 1914. On May 1, 1913, the patient had had a mastoidectomy, with obliteration of the lateral sinus for mastoiditis and a sinus phlebitis. Early in the fall of 1913 the patient complained of headache and roaring in the head. The pain was in various parts of the head, but always on the right side. Otherwise the general health was good. At times the patient was dizzy. On the morning of March 9th the patient complained of headache, and said that his head had been aching for several days, and that there was pain in the right ear. Patient worked at his usual vocation of driving a motor car throughout the day without apparent trouble. In the evening, while in the barber chair, the patient said, "My, I feel deathly sick," and in a few minutes he was unconscious. He was examined by two physicians, who reported him unconscious. There were no reflexes present, except a very slight contraction of the pupil to light. There was complete general anesthesia, including the corneae, except over the squamous portion of the right temporal bone, where tapping with the finger produced a spasmodic contraction of the muscles of the face and eyelids. The patient was moved to the hospital, arriving there the evening of March 10th, about ten o'clock. Examination of the general nervous system was negative; examination of the urine negative; blood pressure, 95 mm. of Hg.; spinal puncture revealed a clear fluid, under apparently normal pressure; temperature 98.8°; pulse 60; respiration 20; examination of the eyes revealed pupils small, re-

action to light sluggish, a very fine horizontal nystagmus present, shown only by using the ophthalmoscope, fundi normal; examination of the right ear showed the right drumhead reddened and slightly bulging.

Operation: A semicircular flap of skin, fascia, muscle and periosteum was elevated from the temporal region, the incision extending from the upper part of the mastoid in a circular direction, upwards, forwards and downwards, to the anterior border of the posterior and of the zygoma. The flap was dissected downwards so as to expose the upper border of the external auditory canal. The dura was tense and reddened. It was painted with tincture of iodine and then incised. Incision of the dura resulted in the escape of a small amount of fluid under pressure. The brain did not bulge into the opening, so we were probably dealing with a localized meningitis. The brain was explored. At a depth of one and one-half inches from the lateral surface, over the tegmen tympani, a softened area was discovered. A gauze drain was inserted, the semicircular flap replaced, and a vertical incision one and one-half inches long made directly in the dura. Through this incision the drain was passed and moist compresses applied.

The morning following the operation the mental condition was good. His brother, who was with him during the night, said that after the effects of the ether were gone he was apparently mentally all right. In the morning he recognized the speaker immediately, although he had not seen him for six months before, and then only a few times. His temperature was normal; pulse 70 to 80. On the fourth day the drain was removed, and the patient has been apparently well since. At the time the drain was removed a condition new to us was observed. Following the withdrawal of the gauze drain eight or ten very large bubbles of gas escaped. They came from the bottom of the cavity and carried with them pus and pieces of the brain debris. Unfortunately, they were not able to get a culture of the gas-forming microorganism which was probably the specific cause of the trouble. There has been no opportunity for the admission of extraneous microorganisms. In this case Dr. Dean thought that the sudden attack of unconsciousness was due to the formation of gas in the cerebral cortex.

DISCUSSION.

Dr. Joseph C. Beck had talked with Dr. Dean about these cases before the meeting, so felt that he could say something about them, having had a chance to think them over and look up the question. From the remarks the doctor made in presenting this wealth of material, it was almost impossible to discuss the cases and say anything definitely about them, especially the first one. He thought that all the symptoms the patient had could be very easily explained on the labyrinthine irritation rather than any brain irritation. Patients with labyrinthine irritation will

have a falling to that side, and the pointing test usually made in that condition is not very dependable. At least he has not found it at all reliable. At any rate, the small temporo-sphenoidal abscess there could scarcely come from contiguous pressure on the cerebellum—there could not be sufficient pressure there to produce these symptoms. While the doctor said the case has necrosis of the labyrinth, yet it might have been a localized labyrinth necrosis. There might have been some remains of the vestibular apparatus present. He had examined a case the day previously in which irritation with hot and cold water gave absolutely no reaction, in a case of supposed labyrinthine destruction, yet when he turned the patient he got a very lively reaction.

The case of gas formation in the brain interested him because he had recently a case of abscess, with pure culture of a motile bacillus, which was bacteriologically proven to be a bacillus pseudo-dysentericus, Class 2, according to the reactions used for the identification of this class of organisms. The case looked as though it might have been typhoid, or a bacillus coli communis infection, but it proved to be the bacillus pseudo-dysentericus, and that case had gas formation in the region of the abscess. The group of colon bacilli have that tendency.

Regarding the case of necrosis of the teeth, he thought there was insufficient cooperation between dentists and doctors in this line of work. He had shown a case to Dr. Dean which he would like to refer to briefly, which was quite similar. A patient came to him having an ulcer of the septum and he could not account for the trouble in the nose—that is, from any nasal affection. This patient complained of pains all along the face. So he sent the patient back to her dentist and said that he could find nothing to account for her pain. The dentist told the patient to "get a good nose doctor." The speaker had her teeth examined by another dentist and he discovered a crowned tooth which he thought was at fault. He simply took off that tooth-cap, and there was a dead, black tooth, and underneath it was a sequestrum, one-quarter inch in diameter, and beyond that an area of necrosis. And that was the point he wished to make, with reference to the difficulties that he was meeting constantly in that the dentists did not cooperate sufficiently in the differential diagnosis and treatment about affections of the nose, throat, mouth and ears and the teeth.

A PROTEST AGAINST THE NON-CENSORSHIP OF ADVERTISEMENTS OF SURGICAL INSTRUMENTS, ETC.

Dr. Arthur M. Corwin pointed out that through the efforts of the Council on Pharmacy and Materia Medica of our national association the medical profession, and therefore the public, has come to find something like security against fake drug combinations and secret formulae that not so long ago found advertising space even in our best journals. By way of contrast, one may see the glaring misrepre-

sentations contained in various advertisements of surgical instruments that still appear in such journals. Numerous examples were cited. It is high time that the pirate and impostor, the dealer in false pretense, should be shown up and driven out of business or compelled to reform. A proper committee or council should be established to scrutinize the goods and the pretensions of this class of advertisers, in order to protect the buying profession from instruments purported to be patterned after certain approved models, but which are often travesties upon the real thing. These grotesque imitations fail utterly in making good, and therefore disgust the purchaser and bring discredit upon the surgeon whose name the original instrument bears, and upon the operation or technique which he has recommended in good faith. There is no more reason for misleading the profession through false advertising of things surgical than of drugs.

DISCUSSION.

Dr. R. H. Brown asked if he was right in saying that recently an ordinance had been passed declaring against this fraudulent advertising, so that it is perfectly possible for a man to sue in a case of this kind, bringing the evidence up in court and obtain judgment?

Dr. Corwin answered that there might be a local ordinance to that effect.

Dr. Brown said that if that were true in Chicago, then it would be a very easy matter to bring up such an impostor, get judgment and have that judgment published, without any serious reason for a comeback on the part of the manufacturer. It would be one of the best ways, perhaps, of bringing such frauds before the public.

Dr. E. Pynchon thought there was nothing new about the idea of instruments being made entirely different from the design of the one who first got the instrument up. He had had similar trouble with his nasal speculum. The first ones were gotten up by Truax, Greene and Company, and were charged for at the rate of \$3.50. Different manufacturers reduced the price until eventually a firm in Philadelphia makes them drop forge, and sells them for fifty cents, and these are no good. He very often sees instruments bearing his own name that he could not use himself. They are not only advertised in catalogues, but he sees the advertisements for them in medical journals, and he also sees such instruments in physicians' supplies stores. It is wrong for surgical instrument dealers to reproduce different patterns of instruments so as not to conform with the design originally called for by the inventor.

Dr. J. Holinger said that usually things that are cheap in price are cheap in quality. He did not think it was the society's business to protect those who do not want to pay the money for good instruments. They deserve to be fooled. There is nothing new in that. But he wanted to ask Dr. Corwin where he would draw the line between cheap instruments from

an acknowledged cheap firm, and worthless ones from a good firm. For example, there are chisels being sold every day by a well-known, first-class house which do not deserve the name of chisels, and these instruments are sold at fair prices. He had experience with them and spoiled nine chisels in one mastoid operation. Either they simply bent over so that the edge was practically double, or they were too hard and large pieces broke out. How would Dr. Corwin guard against that? We have no control over the open market. If the society would appoint a committee, as Dr. Corwin suggested, Dr. Holinger was afraid its members would be in hot water from the very start.

Dr. Corwin, in closing, said that the matter referred to by Dr. Pynchon brought up a very different phase of the question, namely, the pirating by different houses of instruments made by a certain house, which did not appear in the journal as advertised. He had referred in his paper only to journalistic advertising. That is a thing the society could get at. The medical colleges have been gotten at; also the drug concerns, and advertising quacks. The advertising of surgical appliances is just as tangible.

He differed with Dr. Holinger when he implied that the medical profession, as made up of individuals, should paddle its own canoe as individuals, and with no idea of the fundamental proposition that we are our brothers' keepers. Anything we can do to help each other is certainly in line with organized medicine and the ethics of our profession. It is a duty and a privilege to help the other fellow. To let a lot of irresponsible manufacturers misrepresent us to the public is wrong. The matter of the steel not being properly tempered is bad enough, but when an instrument comes out with a ratchet on it that has no function at all, and when such instrument was totally unlike the originator's model, he thought it was time for the profession to act.

He had simply attempted in his brief paper to voice a protest against that sort of thing and to stem the tide of that kind of misrepresentations, as far as possible.

REPORT ON TWENTY-SIX CASES OF TONSILLECTOMY TWO OR MORE YEARS AFTER OPERATION.

Dr. Alfred Lewy made this report. Nine patients were improved or cured on the condition for which operation was performed. Four of these were operated because of suppurating ears and one for deafness. The improvement in these cases may have been due to removal of adenoids, which operation was performed at the same time. The other four improved cases were operated for frequent sore throat. Seventeen patients were apparently not benefited. In three of these, recurrent laryngitis has appeared since the operation. The cause of this is not accounted for. Of five patients under the age of six at the time of operation three are undersized as compared with other members of the same family.

There were no cases of arthritis in this list. Various disorders of obscure origin were not benefited.

The mechanical part of the surgery was good. One case showed a little asymmetry of the arch.

Dr. Lewy said that so far as this list was concerned, the results obtained did not justify the operation in seventeen out of twenty-six cases, and believes that the removal of tonsils is not indicated in the absence of direct evidence of their causal relation to the condition for which relief is sought. The condition of each patient was reported in detail. A careful study of a large number of cases is desirable, this list being too small for general conclusions.

DISCUSSION.

Dr. Arthur M. Corwin thought papers of this type might be very valuable in pointing a way for us, not only as operators on tonsils, but in other regions of the body, by taking up the subsequent results and trying to analyze those results in terms of the operations and the indications for those operations. Perhaps we have been too lax in doing that and have overlooked the importance of it. We have hundreds and perhaps thousands of patients who have been operated on for specific things in a specific way, and we do not know today what the conditions of those patients are and how far those conditions can be interpreted in terms of the operation and of the indications for which the operation was done. Therefore, he would compliment the reader of the paper at the outset for his point of view.

Great emphasis could be put on that first proposition but, as the essayist said, very little of value rests with so small a number of cases. As he referred to laryngitis in one or two cases, it occurred to Dr. Corwin that laryngitis, pharyngitis, dryness and a lot of other symptoms have been reported in the literature, but how far those conditions are referable to the systemic background or other complications or habits and manner of the patients' living, we would have to go into before laying any stress upon the fact that patients have had other conditions following resection of tonsils and removal of adenoids, and just how far these conditions were dependent upon the operation. Of course, that is drawing a long bow, say that laryngitis in those cases was due to the results of operation. And so with regard to the size of the patient's uvula in those cases. The results seem very uniform. So wide are the results of a beneficial nature so far as the size and growth of development of the brain and structural function in these cases are concerned, that we do not hesitate to say, where tonsils and adenoids offer a local regional or systemic reason for being removed, they should be removed.

Again, the matter of tonsillotomy under the age of the second dentition the speaker would not discuss for lack of time, further than to differ with the essayist's position.

Dr. Joseph C. Beck thought the weakest point in the presentation of Dr. Lewy was the fact that these

were dispensary cases, and the conclusions which we could draw from these cases are different from those to be drawn from cases from private practice. For instance, the question of hygiene comes in, in the after-treatment, and differs very much in dispensary and private practice. Dr. Beck would like to have a report of ten private cases which had been followed and studied with that point in view—the ultimate result. The question of the ultimate result is bound to be touched on more and more, not only in the matter of the tonsil, but in goiter, appendicitis, and other things.

Dr. Beck has made a study of the question of tonsillectomy in relation to arthritis, particularly, and as he had said on previous occasions, he could not recall more than two distinct cases that had had pure joint or rheumatic infections that, when operated for the removal of the tonsils by tonsillectomy, had ever had another attack. He had many cases under his observation, adults particularly, who had had arthritis and septic symptoms, who were markedly benefited, so far as their symptoms were concerned, as long as a year after operation. At the end of that time they had recurrences to the degree that they were just as bad as before. It is not a question of the tonsil alone, but other foci of infection that we must study, especially now that the enthusiasm is so great and the work is thrown on the laryngologist. Everything is referred to the tonsil, everything comes from the tonsil, and we are liable to fall into that error and say yes, remove the tonsil, and then see the symptoms come back—the same symptoms that were operated for, particularly in reference to arthritis. He has been very much disappointed in his ultimate results in adult cases of removal of tonsils for the cure of rheumatic affections. There has been a general improvement—that is true—but the actual cure of the condition has not taken place. He would like to hear men who were enthusiastic on that subject express themselves on the ultimate result five years later. He thought the subject was very interesting.

Dr. Shambaugh expressed surprise at the large percentage of unfavorable results in the series of cases reported by Dr. Lewy. He could hardly understand what the indications were for the operation, or, in other words, what they were trying to cure by the removal of the tonsils, where there could be seventeen unfavorable results out of twenty-six operations. The chief indication for the removal of faucial tonsils in children is a history of repeated attacks of acute tonsillitis. Now, in all these cases there is bound to be a favorable result, as the child will not have tonsillitis again. Another indication for the removal of tonsils in children is the presence of very large hypertrophied tonsils, often obstructing the respiration. Here, again, we can have only a favorable result from an operation. If, on the other hand, we remove tonsils which have not been subject to repeated attacks of tonsillitis, and where there is no marked enlargement, because we hope that their re-

removal may have a favorable effect upon, for example, the tendency which the child may have to contract head-colds, or because the child has purulent otitis media, I think it not unlikely that we shall be disappointed in most cases in the result. The relationship between the presence of adenoids and persistent nasal catarrh, as well as the persistence or recurrence of purulent otitis media, we all recognize. On the other hand, aside from the acute otitis media and the acute nasal catarrh which follow upon attacks of acute tonsillitis, I am inclined to doubt the tonsils as an important etiological factor in disease, either of the nose or the middle ear.

Take another class of cases, where the indication for the removal of the faucial tonsils is the existence of a systemic infection which has followed an attack of tonsillitis; for example, an endocarditis or acute Bright's disease. Here I believe that the removal of the faucial tonsils is certainly indicated, as the recurrence of the systemic infection is much more likely to take place through a subsequent attack of tonsillitis than from any other source. The result of the removal of the tonsils in such cases should not be classed as unfavorable simply because the case happens to develop a recurrence of the systemic infection through some other route. I repeat that the removal of the faucial tonsils in such cases removes the most probable gateway for a recurrence of the systemic infection.

As regards the arthritis, the situation is quite similar. If a person has an attack of articular rheumatism which follows directly upon an attack of tonsillitis, we all of us accept this evidence that the systemic infection which has caused the rheumatic trouble has gotten in through the tonsils, and in all cases where the joint trouble is at all serious we advise removal of the tonsils. In most of the cases with a history of this sort the joint trouble will clear up promptly after the removal of the tonsils. In other cases, however, where the relationship between the tonsils and the joint trouble seems to be established from the history, the removal of the tonsils may not result in the immediate clearing up of the infection in the joint. The reason for this seems to be that in some cases the infection that has taken place in the joints is sufficient to continue even after the original focus has been removed. In other cases these joints which have once been affected seem to remain sensitive and much more likely to develop acute reactions from sources of infection other than the tonsils. Dr. Shambaugh believes that the cases of joint trouble which distinctly follow upon an attack of tonsillitis and which are not entirely cured by the removal of the tonsils, do not constitute an argument against the removal of the tonsils in these cases. He pointed out, however, the danger of erring on the side of allowing one's self to do unnecessary things for imaginary tonsil trouble. The speaker has removed a great many tonsils because of systemic infections, such as chronic nephritis, chronic arthritis, neuritis, etc. In all cases of this sort where

the systemic infection has not followed directly upon an attack of tonsillitis or where the presence of foci of infection in the tonsils could not be positively demonstrated, every effort should be made to discover other foci.

Dr. J. Holinger could only say, "I told you so." Four and five years ago he showed cases before this and other societies where tonsils has been removed and subsequently the patients had complained of practically the same symptoms as before operation. So that is nothing new. But he thinks the profession ought to draw one conclusion, namely, to stop hammering into the people's heads the idea that the removal of the tonsils is a panacea against all and every illness, and especially is this the case in the schools.

Dr. Burton Haseltine thought Dr. Lewy's idea a splendid one, but agreed with Dr. Beck that it is pretty difficult to judge of the end results in clinical cases. He was quite surprised at the percentage of poor results reported, but he did not think, in justice to Dr. Lewy, they should be discussed without knowing more details as to the conditions existing previous to operation. We don't know how much of the trouble reported later existed before operation; for instance, in the matter of suppurating ears. As he understood the essayist, quite a number of the reported cases were operated for the purpose of relieving or curing the suppurating ears, and in no case was the statement made as to whether the patient was treated after operation or not. It is extremely improbable that removal of the tonsils alone was expected to cure these cases.

He agreed with the other speakers that if we could make records from private practice it would be of far more value, for several reasons; first, the results in private practice are more vital to us; second, we possibly are more conservative in advising operation in private than in dispensary cases. Also, we are more apt to know the end results, since if they are not good we will hear of them much sooner. So that while he thought the idea was a splendid one and we should all follow it up, he hoped that other reports would include private as well as clinical cases. Any positive conclusion from such a limited number of cases would be exceedingly questionable.

Dr. Lewy, in closing, said that the gentlemen who criticised the small number of cases were perfectly justified, but the report was gotten up in the hope of encouraging the preparation of other reports of like nature by men who had perhaps more time to devote to it and could report on three or four hundred consecutive cases. He did not think we could draw any definite conclusions from twenty-six cases.

In each case he stated the cause for which the operation was done, but did not read them all on account of lack of time.

The question of tonsillectomy and tonsillotomy he would not go into either, since Dr. Corwin was kind

enough not to start anything, but he presumed the differences of opinion were both founded upon theory.

Dr. Beck's criticism that the patients were from dispensary practice and that we cannot judge the results in private practice from those in dispensary work was, of course, true. Patients in private practice frequently have other treatment than the mere removal of the tonsils, and this is also a factor in the end result; clinic patients more frequently have only the operation to which to credit the result. Also, the fact remains that the very large majority of tonsil operations that are done in the community are done in dispensary practice and if four or five hundred cases would average as poorly as these twenty-six, we are doing a gross injustice to the dispensary patient in the way of doing unnecessary operations. He believes that he refuses more cases than he accepts for operation at the Eye and Ear Infirmary—cases that have been referred from the schools—this in reference to Dr. Holinger's remark.

His intention is to follow his cases for a little while and judge the results—the cases that he refuses to operate as well as those in which operation is performed.

Another object of the paper was as a protest against indiscriminate tonsil operation, and he thinks that it is in the clinic that we are a little bit indiscriminate in operating. If the child has had a sore throat, the tonsils are usually removed. The cases should be studied a little more thoroughly.

One of the best indications for removal of the tonsils is frequent repetitions of tonsillitis. The cases in his report that were helped were just such cases.

The removal of tonsils for aural suppurative processes and non-suppurative deafness is, he believed, commonly practiced. Personally he could not see the sense of it, as removal of adenoids alone is usually all that is necessary, but it is his experience, in visiting other clinics, that it is considered a good indication for removal of the tonsils, and so also in many of the textbooks.

Dr. Shambaugh did not hear him read the reasons for the paper. He is thoroughly in accord with those who wish to remove tonsils for systemic infection, when they can reasonably show that the cause lies in the tonsil, and when they can find trouble in the tonsil itself, but he is not in favor of removing the tonsils just because they are there and moderately enlarged.

THE UNUSUAL FINDINGS IN FRONTAL SINUS DISEASE.

Dr. J. Holinger, in a paper on this subject, said that an account of interesting indications and findings at operations on the frontal sinuses had been given at different times, especially in the *Muenchener Medizinische Wochenschrift* ("Frontal Sinus and Maxillary Antrum Operations"), 1913. Two new cases were added. The first was that of a woman of fifty-five, treated within the last few years for two

acute attacks of inflammation of the right frontal sinus. A fresh attack, apparently worse than the preceding ones, kept her in bed for the last ten days. Hot and cold applications were of no avail. The entire right side of the head seemed red and swollen. The right eye also was swollen. Several groups of blisters seemed to be caused by too hot applications. In the nose pus was seen laterally and medially to the anterior end of the middle turbinal. Operation was advised on account of the experience of the preceding attacks and because the patient begged for immediate relief. Extradural or intradural involvement could not be excluded, but was rather a probability. As soon as the head was shaved similar blisters were found on the vertex as on the face, but they were strictly confined to the right side of the middle line. A diagnosis of herpes zoster was made. A radical Killian operation was performed, in spite of this new development, because we knew that the sinus was chronically inflamed, and the herpes zoster could well be a consequence of the sinusitis, as the supraorbital nerve often is exposed in the sinus. At the same time the nerve could be stretched. At the operation the sinus was found filled with pus and polypoid degenerated mucous membrane. The nerve was exposed and stretched out of the foramen. The result of the operation was great relief from pain. Slight attacks at great intervals could not be compared with the former suffering. Recovery took more than a month, but is complete.

The second case was that of a man, twenty-eight years of age, a baker, who fell in May, 1913, against a sharp edge with his right temporo-parietal region. Was not unconscious, but was sick for several weeks. In September he began to have fierce headaches on that side. In the beginning of October the right eyelids and forehead were swollen. The headache was at its worst in the morning and disappeared at about three in the afternoon every day. The frontal sinus was washed daily, affording considerable relief in the beginning. The pain was worst at the place where the trauma occurred and over the forehead. X-ray plates gave no new information. The diagnosis was empyema of the frontal sinus, with probable brain abscess. At the operation, November 11, 1913, an enormously large frontal sinus, reaching from temple to temple and well into the hairline, was found. In the inner plate a fracture line could be traced in the upper right-hand part in the direction towards the region where the trauma had occurred. The recovery was slow, taking until January. The headaches stopped, but a peculiar pain became more and more circumscribed in the temporo-parietal region. This area became smaller and smaller, until it finally was about the size of half a dollar and could be accurately circumscribed by pressure with the finger or percussion. Finally this pain, too, disappeared.

Of course, only a post-mortem would have cleared up this case, but Dr. Holinger thought the following

explanation was not far amiss: After the trauma in May, a brain abscess developed, infected from the close proximity of the frontal sinus. After the operation, when the source of infection was removed, the abscess healed. It is well known that a brain abscess does not need to leave a scar in the brain.

DISCUSSION.

Dr. Otto J. Stein said there is no doubt that, owing to the great variety in the size, shape and position of the frontal sinus, probably more than any of the other nasal accessory sinuses, we have to be on the lookout and alert to the changes in symptoms and pathology of this particular sinus. The cases reported by Dr. Holinger simply warn us of the unusual conditions that are constantly brought to our attention.

Dr. J. R. Fletcher said that the case of herpes zoster interested him very much. He had mentioned before picking up a section of bone of the head in which there was complete dehiscence of the bone. That is, the superior orbital nerve was absolutely exposed in the sinus. Instead of there being a canal there was dehiscence of the bone. In other words, this nerve was lying in a little notch, the floor of which was the membrane of the frontal sinus. Dr. Fletcher expressed the opinion then that that might occur in cases of orbital herpes, which are seen occasionally.

He had in mind a case that occurred in his own practice in which there were gangrenous spots and the patient today has quite a number of pits all around the orbit. A neurologist was present that evening and afterwards he said he would like to remind Dr. Fletcher that all of those cases were dependent upon inflammation of the ganglion. He was perhaps convinced against his will and has been of the same opinion still, that that was not necessary; that herpes zoster could be caused by having a nerve bathed in pus, where the nerve trunk itself was bathed in pus, and Dr. Holinger's experience seemed to bear him out in that opinion. Perhaps, after all, the condition referred to as occurring in the specimen he showed a couple of years ago would occur in some of those cases where the nerve is exposed—not running in a canal, but running in a groove that is covered on the outside by dura and skin and on the inside by mucous membrane only. He has the specimen referred to in his possession now. There is no bone between the nerve and the frontal sinus at all. As soon as the nerve was removed the sinus was exposed.

Dr. Joseph C. Beck wanted to speak with reference to the radiogram exhibited by the essayist. He would differ with him that it was a brain abscess case. He thought it was a case of bone necrosis. At least that would be his reading of the X-ray picture. It looked to him like a scarification of the bone and absorption, as we see it particularly in syphilitic cases in the early stages.

He has seen these large frontal sinuses, such as Dr. Holinger described, but truly frontal sinuses.

In this connection he wanted to speak about the Killian operation in these large sinuses. He did a radical Killian operation in a man who had a very large frontal sinus, very deep. He thought there was a double frontal sinus, from before backwards. Dr. Cavanaugh, who was present, assisted him in the operation. He thought it was a very rare case, but on looking up the literature he found that it was perhaps a very large ethmoid cell behind the frontal sinus, as Logan Turner has shown quite a number of them. The recent work of Warren Davis shows that distinct double frontal sinus does not exist. This patient was cured of his frontal sinus trouble, with not a very large deformity, still he has pestered the speaker and probably will continue to do so on account of a so-called scar through his eyebrow, and he imagined the cross incision, employed by Dr. Holinger in his case, would probably be still worse.

He would judge from the paper that Dr. Holinger is doing a lot of frontal sinus work by the Killian radical method. He personally is not doing the frontal sinus work so radically as Killian does; he is trying to avoid it as much as he can.

The X-ray picture of the antrum referred to was not taken in the proper angle and therefore he did not feel that it would be possible to use it as a guide for operation.

Dr. George E. Shambaugh stated that experience had taught him that most cases of frontal sinus infection can be adequately relieved by intranasal operation. In most cases the suppuration can be stopped entirely; in others, even though the suppuration does not entirely cease, the free opening into the nose relieves the patient from the pain as well as from the danger of an intracranial complication. During the past year he has operated upon two cases where an external fistula into the orbit existed and in both cases the operation was followed by the immediate spontaneous closure of the fistula and the relief of the discomfort which the patient had suffered because of the obstructed drainage of the nose. The intranasal work for the relief of a frontal sinus abscess includes the thorough removal of the anterior ethmoid cells; that is, of those ethmoid cells which drain into the middle meatus. If the intranasal work is done carefully by one who understands thoroughly the anatomical relations in this region, the patient is not exposed to any serious danger. The speaker has operated on a great many frontal sinus cases in this way and has never had a dangerous sequel. The external operation, as devised by Killian, may have to be resorted to in the few cases where adequate relief cannot be obtained by intranasal work, but these cases are extremely rare. A patient who is free from pain and who understands that the danger of an intracranial complication is in a large measure removed by the establishment of free drainage into the nose is usually much happier even with the continuance of some nasal discharge than he would

be to have a scar such as is always left by a Killian operation.

Dr. Holinger, in closing, said that he thought he was conservative in his operations on the frontal sinus. In neither of the cases reported did careful intranasal work, carried on for a long time, relieve the patient.

The case of herpes zoster had been treated for several acute attacks before. There was absolutely no difficulty in getting into the sinus for ventilation and washing. Neither the patient nor the speaker is sorry that the radical operation was performed. The patient was very grateful that the fierce pains stopped after the operation. No other means could have produced that result.

Regarding the other case, of probable brain abscess, he would only say to Dr. Beck that there was no syphilis in the case. There was no indication for suspecting any other disease of the bone.

Dr. Beck asked if there was no injury.

Dr. Holinger said that of course there was an injury, but it was not visible, as it occurred seven months previously. We know that after a trauma to the skull there are sometimes fractures of the inner plate, followed by abscess of the brain. It seems quite plausible that at the time of the injury a fracture line ran from the place where the injury occurred down into the inner plate of the enormously large sinus, and that the infection traveled from the sinus along the fracture line to the lacerated brain tissue.

As to the deformities following the Killian operation he does not see many deformities following it, and he does not see either how he is going to limit his indications for the operation. He always treats the patients intranasally, but, as he said, everything has its limitations, and in neither of the cases that he has operated so far would he have seen any possibility of a lasting result from intranasal work.

PEMPHIGUS INVOLVING PRIMARILY THE MOUTH AND THROAT, WITH REPORT OF CASES.

Dr. Robert Sonnenschein, in a paper on this subject, said that all varieties of pemphigus may appear upon the oral and pharyngeal mucosæ, but while the chronic forms are fairly often found, the acute cases are considered to be quite unusual in occurrence. Owing to constant maceration and other unfavorable conditions, the actual vesicles are seldom seen. Instead, there usually appear ragged, gray-white membranes or smooth, red or granulating erosions. Differentially, pemphigus on the upper respiratory tract must be diagnosed from a number of conditions, such as lues, herpes, leukoplakia, diphtheria, etc. The duration of the disease varies greatly from a few months in the acute to many years in the chronic form. The primary or early appearance of pemphigus lesions in the mouth or throat is considered by most authorities as pointing to a very poor prognosis, most of these cases dying within a rather short time.

This fact is emphasized in the history of the two cases presented. In both of them death occurred within six months of the onset of changes in the oral mucosa. In neither case did vesicles appear on the skin until rather late in the course of the disease.

DISCUSSION.

Dr. W. T. Mefford asked the doctor what these people die of; what is it that kills them; what are the pathological findings other than the local sore? Again, he would like to ask the doctor whether he has tried autogenous vaccines. It seemed to the speaker that this was a field for their use.

Dr. Otto J. Stein recalled a case of pemphigus which he saw when a medical student, and it made a great impression upon him. These cases are very rare, of course, to nose and throat men. The dermatologists formerly looked upon them as quite rare, but now they do not seem to be quite so infrequent. The case referred to was very extensive, involving the skin over the entire body, and also the mucous membrane of the mouth, throat and trachea, and the entire intestinal canal, as was later shown by autopsy. He received the impression at that time, from the professor who demonstrated the case at the clinic, that almost all of these severe acute cases died. The case was so extensive and made such a vivid impression on his mind that he has often thought of it in connection with other eruptive diseases that he has seen at different times since, although he has never seen a case that he could call acute pemphigus.

He also referred to the cases that were seen at St. Louis in November—chronic cases of the mouth and throat, which were very interesting.

Dr. Joseph C. Beck said that Dr. Stein's remarks reminded him of a case in his family. An old lady, now ninety years of age, about fifteen years ago had an acute pemphigus, of the giant form of blebs, and was seen by a number of men expert in this line. They all gave an unfavorable prognosis and said she would die from this disease. At that time a paper appeared in the *Journal of the American Medical Association* by a man in Chicago—Dr. Dubs. He had just returned from Europe and reported a case that he had treated at Kaposi's clinic of that type that recovered. This was the treatment: He placed the patient in a bath tub, in bicarbonate of soda solution, and kept her there for nine days, daily coming and opening a number of these large bullæ and never taking the patient out of the water. She was kept there under stimulants of brandy and being fed all she would eat, and she recovered. She had pemphigus of the mucosa also.

Dr. J. R. Fletcher a few years ago had the good fortune to see a case of acute pemphigus of the hemorrhagic form, the blebs being of about cherry size. The same day he also saw a case of herpes. In both cases the blebs were on the pharynx—very distinct, and but for the color in the case it would have been very difficult to have distinguished them.

At least that was his conclusion. Mere inspection of the case would not have gone very far.

As he understands it, these cases are more numerous abroad—either they are discovered more often, are better diagnosed, or else it is true that they are more numerous there than here. He thinks we ought to look out for them. A colleague a few days ago mentioned a case to him in which the diagnosis was urticaria. Of course, that does not necessarily form blebs. They were weals, more or less, but he said that on the top the membrane was somewhat eroded and had a whitish appearance. The speaker wondered whether the diagnosis was correct, or whether it was a case of pemphigus or herpes.

Dr. Sonnenschein asked if there were small vesicles on the pharynx, to which Dr. Fletcher replied in the affirmative.

Dr. Sonnenschein asked how long they had been present, and Dr. Fletcher said only a very short time, as he understood it. They were perfectly new blebs.

Dr. L. W. Dean of Iowa City said that the only case of pemphigus that he had ever had was in the hospital at the present time. The patient came under his care for the first time nine years ago, and at that time had pemphigus of the skin, conjunctiva, cornea and some blebs in his mouth. Treatment was not very successful and the patient came to Chicago, went from Chicago to New York, from there to Berlin, and from there returned to Iowa, the pemphigus continuing in spite of treatment received in each city. It did not do much damage in the mouth. It was a chronic case. He lost his vision in one eye. He developed entropion, with ulcer of the cornea and lost the vision in the other eye, when the chronic pemphigus disappeared. He came under the speaker's observation then and he sent him to the college for the blind. He developed measles. He has had no nodules for four or five years. This had seemed to him a very unfortunate but very interesting case from the very beginning up to the present time.

Dr. Sonnenschein, in closing, and answering Dr. Mefford's question, said that vaccines were not tried in this case because, in the first place, he did not think of using them; second, about six weeks after first seeing the patient he was seriously injured and only knows the rest of the history from the other physicians. Regarding the cause of death, he does not know that that is definitely known, except that gradual emaciation and cachexia appeared, as in other toxic conditions, and apparently that was the cause of death in the case reported.

As to Dr. Stein's statement, dermatologists do see these cases, but those are the cases that show themselves on the skin, and which are easy to diagnose. The point he wished to make was that diagnosis was made by expert dermatologists before the lesions appeared on the skin; in fact, in this case the lesions appeared on the skin very late in the disease.

Dr. Beck's case was an acute one, and at the same time showed lesions in the mouth. That is very rare. The essayist had tried to emphasize the point that the acute cases, beginning with the lesions in the mouth, are almost invariably fatal in a few months.

Dr. Fletcher's case, with blebs in the pharynx, was a very unusual condition, because these blebs usually, as Chiari has shown, burst shortly after formation.

Regarding Dr. Dean's case, the lesions may recur and disappear for a long period of years.

The point made in the paper was simply with reference to the acute lesions in the mouth.

Dr. Fletcher said that he had seen the two cases he referred to in Chiari's clinic.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

A regular meeting was held April 20, 1914, with the president, Dr. Wesley Hamilton Peck, in the chair.

On motion, duly seconded, the resignations of Drs. F. A. Phillips and E. R. Lewis were accepted.

Dr. George F. Suker read a letter from the General Electric Engineering Company, of Cleveland, offering a scholarship in ophthalmology to some one interested in the subject.

On motion a committee was appointed to recommend suitable candidates for the position. The committee was named by the president as follows: Dr. H. S. Gradle, chairman; Drs. Suker and Albro.

The application of Dr. Frederick D. Vreeland was referred to Dr. H. W. Woodworth, chairman of the membership committee.

Dr. M. H. Lebensohn presented a case of glaucoma, concerning which he read a paper entitled:

"GLAUCOMA FOLLOWING CATARACT EXTRACTION."

Mr. George T., age 53, was admitted to the Illinois Charitable Eye and Ear Infirmary June 15, 1913, with a history of failing vision in the left eye nine or ten years and the right eye five years. Diagnosis, right eye immature cataract; left eye, mature senile cataract; pupil of left eye reacted normally; perception and projection good. On June 23 an iridectomy of left eye, about 5-6 M. M. wide was performed, with little reaction following. July 15 vision 200 with a X 11.00 20/40. There was a very thin capsule in the pupillary area. He was needled July 22. July 25 with a X 11.50 he had vision of 20/20 X 2 or 3, and that was the lens prescribed for him. The tension came down and the patient became comfortable again. About the end of November the tension was taken with a tonometer, and it varied from 29 to 40, at one time going as high as 44. Eserine sulphate and pilocarpin seemed to have little effect. February 2, 1914, the tension was 53½ and a scleral trephining was done below, and a peripheral iridectomy. Twenty-four hours after there was a moderate ciliary injection and the wound drained nicely.

February 6 ciliary injection almost entirely gone, wound well drained and no pain. February 14 vision in left eye 20/40. February 18 the patient could not see the electric lights in his room and vision was reduced to fingers about ten inches. Examination showed large brownish mass in upper temporal side. Diagnosis was made of detached choroid. The patient put to bed, eye bandaged, light diet ordered and dionin used in eye. There was no pain and after ten days the reattachment was complete, with vision of 20/30. In two weeks it was 20/20 X 3 and now it is about 20/15, with tension normal.

Dr. Lebensohn said it would be interesting to have statistics of cases of trephining without iridectomy, so as to know whether detachment ever follows that operation.

EYE DISEASES AND AUTOINTOXICATION.

Dr. Clark W. Hawley stated that many eye diseases are cleared up under a urinalysis, showing that the system is absorbing toxins from the lower bowel. It is here the waste products are stored, and if not properly eliminated they are absorbed into the circulation. The uveal tract of the eye, on account of its exceeding vascularity, is a very good stopping point for any wandering toxic material, and thus we have iritis, cyclitis, choroiditis and other inflammatory manifestations.

The diagnosis is made through a very careful analysis, there being two main abnormal conditions which must be taken into consideration, first, acidemia, and, second, evidence of poisonous extractives present, as indican, indol and skatol.

The treatment consists in a most thorough cleaning out of the lower bowel at regular intervals. Treat the acidemia with some form of alkali and regulate amount of water taken. As to medicine, use some form of iodine along with cathartics. For flushing out the lower bowel use three pints to two quarts of water at 110, and in some cases a second flushing immediately follows with the temperature at 120. A tablespoonful of salt is added each time, and the time allowed should be from ten minutes to a half hour. Place the patient in the knee-chest position.

Dr. Hawley reported the case of Mrs. M., May 5, 1913, who complained that her glasses needed changing. The vision of the right eye was 6/18 and the left eye 6/12, no glasses improving the vision. On examination choroidal disease about the macula was discovered. The most painstaking care on the part of the patient in following instructions resulted in a very satisfactory improvement. The charts exhibited by Dr. Hawley showed an increase in amount of urine passed, a decrease in specific gravity and acidity. By October 6 all the conditions were vastly improved, which continued until February 23, when the extractives appear again, due to a partial meat diet. The choroidal disease was arrested and the vision improved two lines. The mental and general bodily condition have also markedly improved.

Dr. M. had had recurring attacks of iritis, an analysis of his urine showing high acidemia and indican present. Dr. Hawley at once put him on the proper diet and treatment, since which time he has had but one attack, and that brought on by not following the prescribed diet.

Dr. Hawley stated that in 1910 he was suffering from apparent chronic cyclitis. A urinalysis disclosed a severe case of autointoxication. After treatment for two months the opacities in his eyes, from which he had suffered, had nearly disappeared. The uveal tract, when once involved, is very sensitive, as is evidenced by the fact that the opacities reappeared after Dr. Hawley had been eating cheese at meals for about a month. After discontinuing the cheese the opacities disappeared after two months. The same old opacities appeared after eating a moderate proteid diet for two months, another evidence that the rule must be followed. He again began treatment and at this time the opacities are hardly perceptible.

Dr. Hawley said that it had been stated that constipation is caused by bowel flushing, but his experience had disproved this as to himself and a number of patients. One patient's severe constipation was entirely removed.

In concluding Dr. Hawley stated that in every case that he had suspected autointoxication to be the cause of the eye symptoms, with the co-operation of the patient, success had followed the treatment, and he felt sure that autointoxication explains many indefinite symptoms of eye strain.

DISCUSSION.

Dr. Brawley stated that the author of the paper claimed to do entirely without proteids. He did not see how it could be managed, for while he could do without animal proteids, it would not be easy to get along without the proteid in the wheat germ. Only in rare instances is it necessary in the judgment of the speaker to do without proteids. We are able in many cases to gradually increase the tolerance of the patient for proteids by giving very small amounts of the more digestible types.

In consultation with internists who are familiar with cases of this kind they are found unanimous in their opposition to this constant flushing of the bowels. For immediate necessity it is invaluable, but it is claimed that it interferes later with the function of the colon and constipation may result. They prefer to use it as a temporary expedient, to be followed later on by the coarser brans and fruit, or vibratory stimulation-without any fluctuation whatever may empty the bowels; also vibration over the lumbar area of the spine. In that way it is claimed that they break up the scybala and what they call the tunnel mass. This is broken up by vibratory stimulation.

In closing the discussion Dr. Hawley stated that he thoroughly agreed with everything that Dr. Brawley had said. He was desirous of shortening his

paper and did not care to extend it along certain lines more than could be helped. He disagreed with one statement made by him in regard to bowel flushings. Patients who have followed instructions have been cured of constipation. If the flushing is carried out with hot water and salt along with a mild cathartic and some form of iodine, constipation is not likely to be produced. Dr. Hawley said that an internist had told him he was doing a very bad thing, that he would have a case of constipation, and he thought so himself, but at the end of eight months he was cured of constipation. Internists do not know much about it and their success is not great. There are several forms of proteids. Fermentation in the lower bowel is nothing more nor less than bacterial disease. The effect of the vegetable proteids is considerably different from the animal proteids, and he referred to the animal proteid. Of course, there is a good deal to be learned, and possibly we may change our opinion, but so far the speaker attributed his success to this one fact.

PROGNOSIS IN EYE INJURIES.

Dr. Richard J. Tivnen read a paper on the above subject, prefacing it by bringing out the close relation between diagnosis and prognosis in injuries of the eye. He emphasized particularly the necessity of gaining a complete history of the case in order to decide upon the best method of procedure and suggested that as only a brief inspection of the eye is usually possible, especially with children, that the routine observance of the following working details will give satisfactory results:

First—The position of the patient during the examination; suggested a recumbent position.

Second—Good illumination.

Third—Specific instruction to the assistants.

Fourth—Arrangement of a dressing table with reference to quick action.

Fifth—Use of local anesthetic.

In addition to the foregoing he urged the necessity of blood examination and Wassermann tests, smears and cultures from wounds and ulcers, urinalysis, both chemical and microscopical, testing of visual acuity and the making of skiagraphs, two at least.

Dr. Tivnen selected for especial consideration two types of injuries, viz., foreign bodies in the cornea and ulcers resulting from such trauma. In the case of the removal of a foreign body from the cornea he emphasized the necessity of protecting the cornea until the healing is complete, as a large majority of corneal ulcers are the result of foreign bodies inflicting injury, and no protective measure should be neglected. Patients suffering with corneal ulcers should not be allowed to make daily visits to the physician's office nor be permitted to engage in their regular occupations.

In the matter of injuries a number of factors determine the tolerance of the eye to the foreign body: Infection, the chemical character of the substance introduced, glass being best tolerated by the ocular tissues since it excites no chemical change. Copper

is particularly dangerous. A number of instances were cited illustrating the tolerance of the eye to retained foreign bodies, one which proved that a foreign body may be in the sclera for five years without occasioning difficulty. However, such instances are rare, and this tolerance cannot be construed as a dependable nor certain element.

In the matter of perforating injuries of the globe the ophthalmologist is always face to face with the danger of the development of a sympathetic process in the sound eye and it presents no well-defined symptoms of its incipient development nor any dependable diagnostic measures which herald its approach. Once a sympathetic process is established, it is next to impossible to stop its progress short of destruction of the eye. When light perception is lost, tension becoming gradually reduced and evidences of inflammatory reaction are present, the globe should be removed without delay. The plastic closure of the lamph spaces and vessel, it is now declared, does not absolutely protect against the subsequent development of a sympathetic process.

Injuries from electric flashes, although presenting great external evidence of severity, have been proven by experience to be of rather a temporary character; in one case where the patient complained of inability to see and intense pain in and around the eyes, together with swelling, vision returned to normal within twenty-four hours, and after a period of two weeks the reaction of lids and globe had subsided, with no impairment whatever.

Dr. Tivnen issued a word of warning in regard to the too ready assurance of the surgeon that the needling operation in cataract is entirely void of danger. This operation is not one of perfect safety, as is sometimes assumed.

DISCUSSION.

Dr. Clark W. Hawley said that there was little left for discussion, as the paper was so thorough. His experience had been very similar to the author's and one of his greatest difficulties had been to get the patient to appreciate the seriousness of the situation. He had always hoped for some way to combat sympathetic ophthalmia. A charming result was obtained by a quack in Salt Lake City by the injection into the vitreous of the eye of a considerable quantity of 1-500 bichloride of mercury. The pain was intense, but the eye was saved and so was the other.

The remarks in the paper concerning the X-ray are very pertinent, but in one case both the magnet and X-ray failed to locate a tiny piece of steel, which was found by careful examination. It is surprising to see how tolerant the eye becomes to foreign bodies. Dr. Hawley cited a case where a piece of steel had been in the eye for a year and six months, it being very small and having entered between the cornea and ciliary body. The member of the ophthalmological society at that time—twenty years ago—said that removal would cause the loss

of the eye, but I removed the steel and the man has 20/20 vision.

Dr. A. L. Adams stated that he was impressed with Dr. Tivnen's advice to have an X-ray examination in cases of doubt as to the presence of foreign bodies in the eye. He cited a case where the attending physician diagnosed contusion of the eye and he was unable to find any evidence of penetrating injury, as he was unable to make an examination of the fundus of the eye. In this case the X-ray cleared up the matter immediately and a foreign body was shown lodged just posterior to the eye in the optic nerve. The foreign body penetrated the lid in a transverse way, so that the wound had closed and was unnoticed. In doubtful cases you get much information from the use of the X-ray, even though there is no suspicion of a foreign body being in the eye.

Dr. Carl B. Wilkin was pleased to hear the statement made as to not placing too much reliance upon the word of the patient as to a foreign body being in the eye. In a recent case a patient had stated that he felt something strike his eye. On examination a foreign body could be seen in the retina, but with a magnifying glass no point of entry could be seen. In twelve hours the fundus was so opaque the fundus could not be seen. A spiral incision was made and the body removed. The procedure should be, first, the ophthalmoscope; second, the X-ray, and then the exact localization by means of the X-ray.

Dr. M. H. Lebensohn said that in the prognosis of disease it is well to remember the resistance of the patient. A man who was blasting on the railroad got a foreign body in his eye and after several weeks the X-ray showed the steel, which looked like a cap. After it was extracted it proved to be nothing but a small piece of exudate. The man made a healthy recovery.

Another case was a man who had a piece of steel in his eye six weeks. It was located in the lens and a cataract was taken out at the same time. The lens was extracted and that same evening he was walking around in the basement smoking a cigar. This was due to nothing but the man's great resistance.

Dr. Lebensohn recommended strongly the use of cyanide of mercury in sympathetic ophthalmia. In a recent case the eyesight had not been saved altogether, but the vision had been improved.

Dr. Tivnen, in closing the discussion, stated that he was glad that the speakers were unanimous regarding the accepting of the patient's word. In a recent case where there was no evidence of an entrance wound the fluorescent test was used and the patient about to be dismissed. Before dismissing him, however, a drop of cocaine was dropped into his eye and he was taken into the dark room. This was done without any apparent reason, but the result was amazing, as a piece of steel was laying on the retina.

The type of cases that give us the most worry

are those of perforating injuries of the eye, with no foreign body in the eye and the patient declines to have the globe enucleated. It is easy in the case of a woman or young child to allow ourselves to be influenced. If we will read Fuch's article we will obtain the method of procedure definitely and positively, and any variation is apt to result disastrously. His dictum is perception, projection test and also tension of the eye. When they fail do not wait any longer.

A good work for this society would be to teach the radiographers to specialize in their work; for instance, we might concentrate upon two or three men in this city who will give the time and acquire the necessary equipment to localize these foreign bodies, occasionally bringing them here, perhaps, to demonstrate their plates.

On motion of the secretary the president appointed a committee of three, consisting of Drs. Tivnen, Lamothe and Nance, to investigate the nature of the contents of golf balls.

THE MODERN THERAPY OF PNEUMOCOCCIC INFECTIONS OF THE EYE.

Dr. Harry S. Gradle stated that in the past our ideas of virulence had been gained by animal experimentation, but it has been recently shown that the pneumococcus in a 24-hour culture will assume one of three types; first type, small, delicate, lanceolate pneumococcus. It is very virulent. The second type forms the larger diplococcus, somewhat more rounded. This is not so virulent and is a more common type. The third type grows very luxuriantly and is not so highly virulent. In a culture it would be taken for a true streptococcus.

The new drug, ethyl-hydro-cuprein is an absolute specific against the true pneumococcus in every respect. It has not a great penetrative power and we cannot use the drug in closed cavities because it is highly toxic. It is very soluble in water, and as it is irritating, should be preceded by a cocaine anæsthetic. The use of this drug in pneumococcic infections of the eye will cause them to disappear in two or three days. In the pneumococcic infections of the tear-sac the treatment depends upon whether the condition is accompanied by stenosis. If not we can syringe out the passages with a 1 per cent solution of ethyl-hydro-cuprein and get rid of the condition in a short time. Our most important advances in the line of pneumococcic affections of the eye have been made in serpiginous ulcers.

Wessely's steam cautery is a small instrument with two tubes going through it, one solid metal tube being kept at a temperature of 100 degrees centigrade. With that the anesthetized cornea is massaged for a period of three minutes. Too short use of this instrument is dangerous, as it only numbs the organ. The steam must have a chance to kill the organisms. In severe cases we must resort to the steam cautery. In the intra-ocular affections there is no advance in the therapy. We can influence those

cases to a degree by the use of uro-atropine if we start early enough, and it is also good as a prophylactic agent.

PAUL GUILFORD, Secretary.

JOINT MEETING OF THE CHICAGO MEDICAL SOCIETY AND CHICAGO OPHTHALMOLOGICAL SOCIETY HELD MAY 13, 1914.

Dr. W. H. Peck, president of the Chicago Ophthalmological Society, in the chair.

There was a symposium on "The Prevention of Blindness."

Dr. Frank Allport read a paper on "Conservation of Vision," in which he said that societies for the conservation of vision have been formed in various portions of the United States. They exist under different conditions. The membership in some is medical and in others both lay and medical. In Pennsylvania, Indiana, Missouri, etc., the organization exists as a committee of the State Medical Society; in New York, Illinois, etc., independent associations have been formed; in Ohio the "Commission," as it is called, is a part of the state government. There is also a national association, independent in its nature, and mixed in its membership. Some of these associations, such as New York, Massachusetts, Maryland, Ohio, etc., are doing energetic work, while others are inactive and almost useless.

At the 1913 meeting of the American Medical Association the council on health and public instruction appointed a committee on conservation of vision, of which the speaker was appointed chairman. The object of this committee was to produce interest and action in conserving vision and endeavor to concentrate under the auspices of the American Medical Association activities calculated to preserve the sight of this and coming generations. The work of this committee began by utilizing the machinery of the association. The council on health and public instruction sends out each week a sheet called *The Press Bulletin*. This is sent free to nearly six thousand newspapers, and the printed matter upon its face can be used by the papers as editorials, news matter, etc. This printed matter consists of short, plainly written articles on health topics. They are unsigned. The council also employs clipping bureaus and through them it is ascertained that these articles are very extensively used and are shaping public thought along medical lines in this country. The committee on conservation of vision has an appropriate article in the *Bulletin* each week and it is felt that this is a most important part of its work, as it reaches so many people and is under direct control.

The next work of the committee was to write, print and circulate twenty pamphlets on popular eye topics. The authors' names are printed on these. They are short articles, plainly written, so that non-medical people can easily understand them. They also are well illustrated. They are for sale at five

cents a copy, but are also freely given away on proper application. Sets of these pamphlets have been sent to public libraries, women's clubs, teachers' institutes, state legislatures, health boards, etc., all over the United States.

Next it seemed desirable to the committee to create a national sentiment in favor of conservation of vision and for this purpose it was determined that lectures on this subject should be delivered in each state. A lecture bureau manager was appointed in each state, who was willing to superintend the work in his state. Where a state organization for conservation of vision existed, one of its officers was selected to carry on the work, but where no such organization existed, a prominent, energetic and willing oculist was selected. This "state manager," as he was called, was to enlist the assistance of all the oculists he could, acting, wherever possible, in harmony with local and state medical societies, both ophthalmological and general. Prominent and energetic oculists were to be found to give lectures on the conservation of vision, such lecturers to reside in different portions of the state, so that long and expensive journeys should not be necessary. The state manager corresponded with local medical societies, women's clubs, teachers' institutes, boards of health and education, etc., and arranged for these lectures, by invitation. The expenses of the lecturer were to be paid, if possible, by the organization issuing the invitation. The lectures were to last about one hour, and were to be given in plain and unscientific language, with a discussion following. In order to make these lectures easy to deliver, the committee prepared a box of about thirty colored and uncolored stereopticon slides and sent them to each state manager, to be loaned to his associates in the work, whenever a lecture was to be delivered. In addition to this a pamphlet was prepared, entitled "A Plan of Campaign for the Conservation of Vision." This pamphlet contained a full description of the plan, and what it was proposed to accomplish. A kind of skeleton lecture was included in it, suggesting subject, etc., to be referred to in lecturing. These pamphlets were freely dispensed to all state managers, who distributed them to their associates in the work. Each lecturer was also placed on the mailing list for the *Press Bulletin*, and also received a complete set of the "Conservation of Vision Pamphlets." Quantities of the Vision Charts for Schools were also sent into each state. While these lectures were intended to cover all avenues of vision conservation, it was especially hoped that it would result in the use of the Crede treatment of the eyes of all new-born babes; in the lessening of shop accidents; and in the annual and systematic examination of all school children's eyes by school teachers; for it is reasonably certain that if these three procedures could be universally adopted, eighty per cent. of all blindness could be eliminated from this country. The establishment of measures referred to above could be accomplished at an annual cost

which would not exceed \$250,000. It costs \$15,000,000 a year to care for the dependent blind in this country alone, to say nothing of those children more or less incapacitated by defective or diseased ears, noses and throats.

Emphasis should be laid on several points connected with the annual systematic examinations of school children's eyes, etc., by school teachers. *First*, the examinations are simple and require no medical education. *Second*, teachers are not expected to make diagnoses. They merely ascertain the fact through the questions that something is wrong, and leave the rest to the doctor selected by the family for consultation. *Third*, a child can be easily examined in five minutes and each teacher should examine the children attending her own room. By subdividing the work in this way, all the children in any city of any size can be easily examined in one day—a definite day—in the early fall—of each year should be set aside for these tests in all cities. *Fourth*, these tests not only benefit the children by leading to the correction of their eye, ear, nose and throat defects, but the correction of these defects benefits the teachers because such corrections usually add materially to the intellectual and moral character of the children, thus rendering them much easier to teach, and more pliable to discipline. Teachers should, therefore, be glad to do this work. *Fifth*, there is no objection to these examinations being made by doctors or school nurses. This, however, would cost large sums of money and boards of education and health are never allowed enough money for even ordinary purposes. This is a fact which might as well be frankly recognized and acted upon. The teachers are capable of doing it, and it takes no extra time. It is a benefit to themselves as well as to the children. It costs practically nothing; therefore, let it be done in this way.

The question may be pertinently asked, "What has been the result of the state lectures?" This has varied greatly in different states. The state managers accepted the work voluntarily after the ideals were thoroughly explained. After a promise of conscientious work was given the box of slides and printed matter were sent, representing an outlay of about \$25 for each state. In some states this ended the matter, and so far as the chairman of the committee knows, no work whatever has been done in some states, no lectures delivered and nothing accomplished. Letters have remained unanswered and appeals unheeded. This has, therefore, been rather discouraging. In other states the work, for one reason or another, has been delayed, but still something has been done, as many lecture engagements have been made for next fall. But, the speaker was glad to say, in most of the states honest, conscientious work has been accomplished and excellent results achieved. The results are, of course, not all that could be desired, but still, considering that this is the first year of the committee's existence, Dr. Allport felt that he should be very grateful to those

gentlemen who have given this project their time, their labor and their means.

As to the future of the work he would recommend:

1. The continuance of a weekly article on the eye for the *Press Bulletin* of the council on health and public instruction.

2. A few more conservation of vision pamphlets on interesting subjects and the increased circulation of these pamphlets.

3. The continuation of the conservation of vision lectures in the various states. Many more of these lectures should be delivered and the state managers should be changed, where the present managers have not shown a reasonable interest in the work. From twenty to twenty-five new slides for the stereopticon should be made that will more fully illustrate the subject.

4. The speaker was at first in favor of encouraging the formation of state societies for the conservation of vision, these societies to possess complete self-government, but all of them to declare themselves in affiliation with the committee on conservation of vision of the council on health and public instruction of the American Medical Association, by a slender thread of connection. He was also in favor of asking those states already possessing state organizations to join with the committee in the same sort of affiliation. Also of proposing an annual meeting of this affiliated organization and the formation of a national body of this nature for the conservation of vision. But time and experience have considerably modified his views, and he now believes that other plans are better.

First, there is already a national society of this nature. It is, it is true, highly inactive, but still it exists and should, he believes, be encouraged to an awakening activity. Second, local conditions in many of the states are not conducive to friendly assistance. However well meant, it is in some states regarded as meddlesome interference, as an effort to rob existing organizations—whether active or lethargic—of some credit, which it is felt should remain with the local organization and not be shared with even a well-intending interloper. These views are but natural to those people who have worked hard to develop a praiseworthy state society. They want the credit for their work, and should have it, and he believes it is better that they should be let alone and not asked to merge their identity or work with that of another organization. His recommendation, therefore, for the future is that this committee shall do what it can to inspire the formation of state conservation of vision organizations, either as independent medical and lay societies or as commissions of the state governments. It should stand ready to advise and assist such work in any possible manner, but it should not suggest a formal connection of any description with the committee of the American Medical Association. This committee should also be equally ready to advise or assist state organ-

izations that already exist and should co-operate with them in any way they may properly request.

He would also recommend that the work of the committee be extended, so that it shall become a potent power in the community. It should have a central office, with a paid, interested, intelligent, energetic secretary, who could and would from time to time journey from state to state, upon request, and assist in the formation and perpetuation of state societies for the conservation of vision. His traveling expenses should be paid by those who summon him to the various localities. He should have a well-equipped office, with one or two stenographers, and a library and files, containing *everything* that is printed on the subject of conservation of vision. This office should be recognized as a central bureau of assistance, advice, literature, laws, etc., where all questions concerning this subject can and will be intelligently and willingly answered. The work of such an office would be enormous and its influence widespread. But to do this considerable money would be absolutely necessary and he would, therefore, recommend that this money should be forthcoming from some source, and that the good work be encouraged to go on. He would also advise the distribution in all schools of crisply and plainly written leaflets concerning the care of eyes, ears, noses and throats. These should be taken home, so that the parents could read them. They should be printed in various languages. Perhaps even a better plan would be to have suggestions of this kind printed on the blank flyleaf of all school books. This would cost almost nothing extra and the benefits to be derived would be incalculable.

Dr. Richard J. Tivnen presented a paper, illustrated by stereopticon, on "Blindness Due to Ophthalmia Neonatorum."

An extended review of the subject was given and numerous tables shown illustrating the prevalence of ophthalmia neonatorum, the proportion of the disease in relation to blindness from all causes and the proportion of blindness caused by ophthalmia neonatorum. From these conclusions were drawn that one-eighth of blindness from all causes is due to this disease and one-fourth of the blindness among children is attributable to the same cause.

A comparison of the cases of ophthalmia neonatorum to all diseases of the eye showed:

	Per Cent.
1. Illinois Charitable Eye and Ear Infirmary, Chicago	1.30
2. Massachusetts Charitable Eye and Ear Infirmary, Boston.....	1.04
3. Manhattan Eye, Ear and Throat Hospital, New York.....	0.03
4. New York Eye and Ear Infirmary, New York	0.08

A comparative table showing blindness caused by ophthalmia neonatorum showed:

	Cases.	Per Cent.
Magnus' table of 2,528 cases of blindness in Germany, ophthalmia neonatorum caused blindness in.....	275	10.876

Trousseau's table of 625 cases of blindness in France, ophthalmia neonatorum caused blindness in.....	29	4.60
Oppenheimer's table of 572 cases of blindness in the United States, ophthalmia neonatorum caused blindness in.....	18	3.10

The census returns from England and Wales (1901) showed one-third of the cases of "Blind from childhood" were blinded by ophthalmia neonatorum, approximately 1,500. Causes of blindness in London school children (based on 362 cases) showed ophthalmia neonatorum to be the most frequent cause of blindness, with a percentage of 36.36. Other statistics gathered by various workers showing percentage of blindness produced by ophthalmia neonatorum are as follows:

	Pct.
Reinhard, Germany, Austria, Denmark, Holland....	40
Claissé, Paris.....	46
Magnus, Breslau.....	34
Katz, Berlin.....	41

The "Special reports on the blind and deaf (1901), United States census," showed 2,556 lost sight after birth but under one year of age, and in 644, or 25.2 per cent of these cases, the cause of blindness was probably ophthalmia neonatorum.

The New York Association for the Blind in a pamphlet on this subject states:

"The official census of New York state (year 1906) gives a total of 6,200 blind persons in the state. Ten per cent of the blindness (or 620 blind persons) was due to ophthalmia neonatorum."

The same observers present tables from eleven schools of the blind throughout the United States and Ontario, showing the proportion of children admitted during the year 1907 who had lost their sight from ophthalmia neonatorum. These percentages show a maximum of 50 per cent and a minimum of 12.50 per cent of cases who had lost their sight from this disease.

A reference to the activity of midwives and obstetric practice showed that "In Chicago in 1904 86 per cent of all births, principally among Italians, were reported by midwives. In Buffalo nearly one-half of the births in one year were attended by midwives. In New York City, in 1905, 43,834 births, or 42 per cent of the whole number, were attended by midwives. For the year 1907, in New York City, there were 68,186 births reported by physicians and 52,536 reported by midwives. In September, 1908, the registered midwives in the five boroughs of New York City numbered 1,382."

The author of these reports well concludes: "In the face of these figures it is idle to talk of the elimination of the midwife."

The essayist touched on the economic side of the question, stating that it costs the state \$3,000 to educate a blind child, and referring also in this connection to the cost of the equipment and maintenance of blind schools and the loss in the earning capacity of the individual and the curtailing of "ave-

nues of opportunity" which the blindness imposes.

A consideration of the etiology, pathology and clinical course and treatment of the disease was presented and a plea made for a more general use of Credé's method of prophylaxis. The essayist also made known the plan which the committee of the Chicago Ophthalmological Society is inaugurating to aid in the prevention of infections due to ophthalmia neonatorum. In brief, it was the plan described by the New York Association for the Blind and was designed to follow three general lines:

1. Educational.
2. Legislative.
3. Co-operative.

EDUCATIONAL.—Through the preparation, publication and dissemination of printed matter emanating from the committee or approved by it; through public lectures, addresses and exhibits, and by means of the press, upon whose generous assistance the committee greatly relies.

The object sought is to spread among the general public the knowledge that infant ophthalmia is a dangerous, infectious disease, fatal to sight unless checked at the time of the birth of the child, easily preventable then if simple precautions are taken; to inform parents, more especially, of the dangers which threaten the sight of their children at birth and the preventive measures which should be taken, and to advocate the universal adoption of such measures.

LEGISLATION.—To promote such legislation as may be needed to accomplish the object in view—the prevention of the unnecessary blindness of infants.

CO-OPERATION.—In furtherance of the same object the committee seeks and invites co-operation with medical societies, health officers, ophthalmic, maternity and other hospitals in which children are born; dispensaries, city missions settlements; with schools, institutions and associations for the blind, and with all societies engaged in work for children and for social betterment; with district visiting nurses and with all persons who are already engaged in this work or who desire to help in it.

THE COST OF BLINDNESS TO THE STATE.

Dr. Thomas Woodruff said that much of the blindness of the world is due to causes that are easily preventable and this can be done at a cost that is small compared with what is needed to educate and care for those who have been deprived of sight. Any individual who through some cause or other has his sight destroyed has his earning power absolutely taken from him. He must become dependent upon outside aid for his future maintenance, and the community loses an asset consequent upon his withdrawal from productive activity. If the blindness occurs in early childhood, the greater the cost to the state. The blind child must be educated in schools specially provided, special teachers are required, and the cost is proportionately higher than in schools where the seeing child receives instruction.

It costs the state of Illinois over \$300 a year for

the maintenance of each blind person under its care. That is, the state of Illinois pays out approximately \$100,000 a year for the education and maintenance of the blind under its immediate care.

The cost of maintenance to the United States of the dependent blind is about \$10,000 per capita through life. It costs this country all of \$25,000,000 a year in taking care of the blind. Then there is the matter of unemployment and reduced earning capacity. The average wage of those of the blind men who are employed is \$7 a week; that of the woman, about \$3 a week. There is no definite data as to the number of blind employed.

Now, as to the cost of preventing unnecessary blindness, and a conservative estimate places the number of cases of preventable blindness at about 40 per cent of the total number. The cost to the community consists of cost of treatment at the onset of the disease, cost of educating the blind, and cost of maintenance, and added to this is the loss occasioned by unemployment as well as reduced earning capacity of the one afflicted.

The cost of treatment is difficult to estimate, as can readily be seen, but this is the smallest item.

As to cost of prevention, let us take the most frequent and most potent cause, as well as the most preventable and most unnecessary form of blindness—ophthalmia neonatorum.

A 1 per cent solution of nitrate of silver instilled into the eye at birth is a sure preventive. Nitrate of silver is cheap. Add to it the cost of containers and expense of distribution and we can save babies' eyes at the rate of two for a cent. Compare this insignificant sum with the cost of blindness. It would cost \$25,000 a year to save the eyesight of the 2,000,000 babies born each year in this country, as against the \$25,000,000 to educate and maintain those who have lost their eyesight through carelessness and neglect.

WHAT THE STATE CAN DO TO PREVENT BLINDNESS.

Dr. Willis O. Nance said that it is a shame that the example set by Illinois five decades ago in establishing an institution having for its object the worthy aim of preventing its indigent citizens from becoming blind or deaf has not been followed by other commonwealths, except in a very few instances. The number of citizens who owe their useful vision to the care of this institution must number in the thousands.

Illinois, for more than a decade, has had a law on its statute books requiring that midwives report within twenty-four hours all cases of "babies' sore eyes." The penalty for non-compliance with the provisions of this statute is a maximum fine of \$100 or six months' imprisonment, or both. It is possible that the existence of this law has been the means of saving some infants' eyes, but every oculist in Chicago knows that the statute is not enforced to the extent that it should be.

Chicago has an ordinance requiring that physicians, midwives or other attendants report every case of ophthalmia neonatorum to the department of health within twenty-four hours after its occurrence.

Strict enforcement of these two laws would, Dr. Nance believes, accomplish much in the prevention of blindness in our community.

The state might also with propriety go back even farther than the conscientious enforcement of the midwife notification law. It might with decided advantage make much higher the requirements for the practice of midwifery in Illinois. It might also require that midwives employ the Cr  d   prophylactic method at every birth, as is done in some states.

The Chicago ordinance requiring that all cases of ophthalmia neonatorum be reported to the health department might well be made a state law. State legislation requiring report of all births, with the information as to whether prophylactic drops were employed or not and "if not, why?" might well be adopted. It might be well to have printed instructions for the care of babies' eyes printed, as occasion demanded, in various languages, circulated in the homes.

Free distribution of nitrate of silver drops by the state should be encouraged. In at least one state, the speaker has been told, these ampoules of silver are sent to every practicing physician and midwife, irrespective of request. They are inexpensive and a comparatively small appropriation is necessary to provide every person who performs obstetrical work with them.

Ample hospital service for the treatment of cases of ophthalmia occurring among the needy should be provided by the state. Illinois, through her state infirmary, has done better for these cases than have most of the states of the Union. Yet she could go even farther by training in her infirmary to handle such cases. A training school for nurses with a course extending over a period of several weeks or months might well be established and maintained at the state infirmary in this city.

Trachoma, responsible for about one-tenth of all blindness in Illinois, must also be reckoned with by the state. This means more adequate enforcement of laws affecting the sanitation of houses, institutions, etc. The ordinance prohibiting the common towel in public places, passed by the Chicago city council at the instance of the speaker, might with equal value be made effective throughout the state.

Ocular injuries are responsible for perhaps 5 per cent of blindness. The greater number of these injuries are preventable, many of them being due to carelessness and ignorance.

The explosive golf ball has entered the realm of sight destroyers to quite an extent the past few years.

Industrial injuries do not seem to be occurring with the same degree of frequency that they did in the past. Manufacturers and railroad officials are furnishing much better means of protection for their

employees than formerly. In this connection, however, the state might well attempt to prevent the removal of foreign bodies from the eyes of workmen and others by non-medical men. Every oculist of experience has seen the dire results following this practice.

Wood alcohol blindness has become of sufficiently frequent occurrence to demand better regulation of its use in industrial pursuits and in its sale to the public.

The state can accomplish much in preventing defective vision and blindness on the part of its citizens by improvement in the school system, so far as it relates to the illumination of schoolrooms, the size and position of desks and seats, the size and character of the print of books, the kind of paper used, etc. The state might with prudent propriety demand that school superintendents, principals and even teachers have some knowledge of physiologic optics, the effects of poor illumination, etc., before they are permitted to qualify for their positions under the law. The state can do much to prevent blindness, but it cannot be expected to shoulder the entire work and responsibility. Through its various institutions and officials it can do much to spread the gospel of education—a decidedly potent factor in the propaganda we are promoting especially at this meeting. Through its lawmaking bodies and executive departments it can assist materially.

There was no discussion on the symposium and the meeting adjourned.

PAUL GUILFORD, Secretary.

Personals

Dr. R. H. Willingham, of Elizabethtown, has purchased the practice of Dr. Kurtz at Neoga.

Dr. Albert J. Roberts, Ottawa, has been re-elected physician of La Salle county.

Dr. William E. Buehler has been elected president of the Public Safety Commission.

Dr. R. L. Kurtz, Neoga, formerly secretary of the Cumberland County Medical Society, has removed to Nowata, Okla.

Dr. Thos. Morgan has removed from Goreville, Illinois, to 644 East Second street, Alton, Ill.

Dr. Albert F. Storke, for five years president of the Board of Health of Oak Park, has resigned.

Dr. and Mrs. Joseph L. Hancock and daughter have returned after an extensive trip through the west, including California.

Dr. W. A. Newman Dorland has resigned as professor of obstetrics in the Bennett Medical College.

Dr. Frederick W. Werner, Joliet, who has been critically ill with septicemia at the Silver Cross Hospital, Joliet, is slowly improving.

Dr. A. M. Corwin, Chicago, chairman of the Committee on Medical Education of the Illinois State Medical Society, denies that he "sat" for the picture of Satan in the September Journal.

Clara Harrison Town, Ph. D., has resigned as psychologist at the Lincoln State School and Colony and opened an office as consultant psychologist at 122 South Michigan avenue, Chicago.

Dr. Thomas H. Glenn, formerly in charge of the pathologic and bacteriologic laboratories of the Northwestern University, has been placed in charge of the clinical and Roentgen-ray laboratories now being installed in the First National Bank building, Fort Dodge.

Drs. Charles B. Horrell, Galesburg; Nina P. Merritt, Alton; F. E. Roberg, Joliet; George B. Kelso, Bloomington; Ora L. Pelton and family, Elgin; Dr. and Mrs. R. S. Denney, Aurora; Dr. and Mrs. Karl F. Snyder, Freeport; Mrs. B. Barker Beeson, Truman W. Brophy and daughter, Samuel Salinger, James P. Way, Carl Langer and family, Bradford A. Camfield and Mrs. Camfield, W. H. Allport and family, Sara C. Buckley, all of Chicago, have returned from Europe.

News Notes

—This issue of the JOURNAL has been copyrighted, to prevent the pirating of its contents by other publications.

—A new hospital has been opened by A. W. Chandler in Rochelle as a public institution. It is open to all regular practitioners.

—The Board of Education of Springfield stated that all teachers in public schools must undergo physical examination and obtain certificates of health before being allowed to take positions.

—The *Williamson County Physician* for September contains an account of the meeting of August 25 held at the Elks Home in Marion. The program was a general discussion of "Post-Graduate Study for the Physician."

—Extra copies of this issue of the JOURNAL can be secured at the office of publication, 3338 Ogden

avenue, Chicago, by remitting a money order, draft or Chicago check for \$2. If checks on out-of-town banks are sent, 10 cents extra should be included for exchange.

—The article on "Arterio-Venous Anastomosis" in the September JOURNAL, attributed to Dr. Dow W. Neal, was written by Dr. Don W. Deal of Springfield. Mistakes are liable to occur in printing shops as well as in "well regulated" families, especially when copy is sent without the writer's name.

—The secretary of the State Board of Health, Dr. C. St. Clair Drake, is insisting that rat extermination and clean-up campaigns shall continue to be actively carried on at all Illinois ports of entry for passengers and merchandise from New Orleans and other territory and on all boat and rail transportation companies entering Illinois from the south.

—The nineteenth annual conference of Charities and Corrections will be held October 24 to 27, at La Salle, Peru and Oglesby. At the same time and place, the Illinois Anti-Tuberculosis Association, the State Probation Officers' Association and the State Association of Superintendents of County Homes will hold their annual meetings. Dr. Emil G. Hirsch, Chicago, is president of the conference.

—The *Madison County Doctor* for September displays its usual energy by getting up a newsy number when the bulletins of many societies take a well-earned rest. An item worthy of emulation is the statement that "Every member of our society has paid his dues for 1914—except three." The August meeting, of which we hope to have a fuller report later, was held at the Harrison Tubercular Colony at Collinsville August 7, and was a rousing good meeting.

—The *Bulletin* of the Montgomery County Medical Society for September contains an account of the picnic meeting held at Chautauqua Park, August 18. Among the guests were Mrs. A. L. Brittin, president of the Illinois State Medical Society; C. H. Burkhardt, of Effingham, councillor; T. H. D. Griffiths, of the State Board of Health, Springfield, and Don W. Deal, of Springfield. The perfect weather and fine program attracted a large attendance of members.

—In the schedule of minimum requirements issued by the State Board of Health, August 4, this clause is included, "No medical college shall

be considered in good standing for the purpose of the Illinois Medical Practice Act, that does not require after July 1, 1918, of all students, excepting graduates of colleges of arts or science to whom advanced standing is given, in accordance with the requirements of this board as a condition of graduation, an attendance on five full courses of lectures in five separate years."

—The thirteenth meeting of the Robert Koch Society for the Study of Tuberculosis was held September 16, 12 m., at the City Club, Chicago. Subject: Condition of the Skin in Tuberculosis.

The society was addressed by Dr. Joseph Zeisler: Non-Tuberculous Lesions Occurring in Tuberculosis; Dr. Oliver S. Ormsby: Tuberculous Lesions, and Dr. Williams A. Pusey on Treatment of Cutaneous Tuberculosis.

These meetings are held monthly, and at each meeting the society is addressed by some worker along special lines of the tuberculosis question. The meetings are always instructive and all are of interest to any practitioner.

—The following appointments have been made to the faculty of the University of Illinois, College of Medicine: Dr. D. A. K. Steele has been appointed Senior Dean and Head of the Department of Surgery in the College of Medicine of the University of Illinois.

It was largely through Dr. Steele's efforts that the College of Physicians and Surgeons became an integral part of the University of Illinois as its permanent Medical Department.

Charles Spencer Williamson, Professor of Medicine and Head of the department; Charles Sumner Bacon, Professor of Obstetrics and head of the Department of Obstetrics and Gynecology; Julius Hays Hess, Associate Professor of Pediatrics and Head of the Division of Pediatrics; Norval Pierce, Professor of Otology; Joseph C. Beck, Associate Professor of Laryngology and Rhinology and Head of the Division; Oscar Eugene Nadeau, Instructor in Surgical Pathology; A. O. Shoklee, Associate Professor of Pharmacology; Roy L. Moodie, Instructor in Anatomy; C. S. Smith, Instructor in Physiological Chemistry.

Marriages

CHARLES H. MACPIERSON, M. D., to Miss Lora Frances Anderson, both of Modesto, Illinois.

ARTHUR MONROE CALVERT, M. D., Chicago, to Miss Anna May Gorby of Cave City, Ky., at Indianapolis, September 5.

WILLIAM S. HECTOR, M. D., to Miss Edna E. Dickens, both of Chicago, at Crown Point, Ind., August 22.

ALEXANDER EDWIN MCCORNACK, M. D., Elgin, Ill., to Miss Josephine Jernstad of Ishpeming, Mich., August 26.

ALBERT HERR MONTGOMERY, M. D., Chicago, to Miss Elizabeth Russell of Tulare, Cal., August 22.

CHARLES MERRILL ROSE, M. D., Galesburg, Ill., to Miss Marguerite Connery of Chicago, September 21.

Deaths

NATHANIEL P. WARD, M. D., Rush Medical College, 1894; died at his home in Saybrook, Ill., August 20, from pernicious anemia, aged 50.

JOHN H. LANE, M. D., Washington University, St. Louis, 1874; long a practitioner of Medora, Illinois; died at his home, September 7, from heart disease.

HENRY REDLICH, M. D., Rush Medical College, 1883; a member of the Illinois State Medical Society; died at his home in Chicago, August 30, aged 82.

CHARLES FRANKLIN BARSTOW, M. D., Hering Medical College, Chicago; 1898; was found dead in his office in Freeport, Ill., August 30, from cirrhosis of the liver, aged 59.

LEONARD H. SPALDING, M. D., University of Maryland, Baltimore, 1869; for thirty-three years a practitioner of Peoria, Ill.; died in Rochester, Minn., August 22, from heart disease, aged 69.

BENJAMIN DORR COLBY, M. D., Rush Medical College, 1884; a member of the Illinois State Medical Society; died at his home in Austin, Chicago, August 14, from cerebral hemorrhage, aged 64.

WILLIAM D. FLACK, M. D., Northwestern University Medical School, Chicago, 1912; of Farmington, Ill.; died in Wesley Hospital, Chicago, August 26, from meningitis following a mastoid operation, aged 31.

LUCINDA HALL CORR, M. D., Northwestern

University Woman's Medical School, Chicago, 1874; a member of the Illinois State Medical Society; died at her home in Carlinville, Ill., September 3, aged 70.

FREDERICK F. CHAFFEE, M. D., New York University, New York City; 1877; a member of the Vermont State Medical Society and Illinois State Medical Society; died at his home in Chicago, August 17, from nephritis, aged 59.

JOHN C. HALLAM, M. D., Marion-Sims College of Medicine, St. Louis, 1899; a Fellow of the American Medical Association; for several years a practitioner of St. Louis; died at his old home in Centralia, Ill., August 13, aged 38.

CHARLES H. BACON, M. D., Northwestern University Medical School (Chicago Medical College), 1862; surgeon of volunteers during the Civil War; a resident of Lockport, Ill., since 1852; died at his home in that city, August 26, aged 80.

ARTHUR WESLEY HAMMER, M. D., Northwestern University Medical School, Chicago, 1911; formerly of Arbuckle, Cal.; was found dead in the bathroom of his apartment in Chicago, August 30; it is believed from water gas asphyxiation, aged 32.

LISTON HOMER MONTGOMERY, M. D., Northwestern University Medical School, Chicago, 1871; a Fellow of the American Medical Association; a veteran of the Civil War; secretary of the Ohio Society of Chicago; died at his home in that city, August 24, from cerebral hemorrhage, aged 66.

Dr. Corr was born in Carlinville, Ill., the daughter of Oliver W. Hall and Deborah Redman Hall, pioneers of Macoupin county. She was married to Dr. A. C. Corr, April 20, 1865, became a teacher, later studied medicine, and was first to graduate from her college. She was a valued member of the Macoupin County Medical Society for forty years, and an active member of the Illinois Woman's Christian Temperance Union. She was associated with her husband in practice till his death twelve years ago, and enjoyed the reputation of being a skillful physician as well as a woman of superior literary attainments.

SOME PREPARATION ANYWAY.

"Are there enough lifeboats for all the passengers?"

"No."

"Are there enough life preservers for everybody?"

"No."

"Well, hasn't anything been done in preparation for shipwreck?"

"Well, the band has learned to play 'Nearer, My God, to Thee,' in the dark."—*Waif*.

A SLIGHT MISTAKE.

"I wouldn't drink out of that cup," interposed little Johnny to the well-dressed young man who had been introduced to his sister the night before. "That's Bessie's cup and she's very particular who drinks out of it."

"Ah," returned the young man, draining the cup, "I feel honored to drink out of Bessie's cup. She is your sister, is she not?"

"Not much. Bessie is my dog."—*Harper's*.

DIDN'T LIKE THE SIGN.

A western horseman tells of a jockey at Windsor, across the line from Detroit, who was recently indisposed.

"If I don't get rid of this cold soon," said the youngster, "I'll be a dead one."

The English and the American definition of lady, illustrated:

An American physician working in a London hospital, while in conversation with a bright looking English girl made a remark about his "work." With a surprised look the girl asked, "Why you are a gentleman, are you not?" "Certainly," he replied, "aren't you a lady?" "No," was the unexpected answer, "I work in a laundry."

The American idea is somewhat different: A colored damsel came into the American clinic with a badly lacerated ear. The physician inquired the cause of the injury. "'Nother lady bit me," was the answer.—*From the Williamson County Physician*.

"Didn't you see Dr. Spinks, as I told you?" asked a friend.

"No. The sign on his door said '10 to 1,' and I wasn't going to monkey with a long shot like that."—*Harper's*.

A vacation that does not recreate is not much of a vacation.

It doesn't pay for you to take a passive interest in matters that affect either for good or harm the community in which you live.

PUBLIC HEALTH

DON'T EAT, - DRINK - BREATHE DIRT

Second Bites are First Class Dangers



Drawn by KATHERINE FIELD WHITE-1915

Pens, Pencils and Pennies carrying Dirt
From Mouth to Mouth do grievous Hurt

If you "Catch a Cold" you catch it
from Somebody.

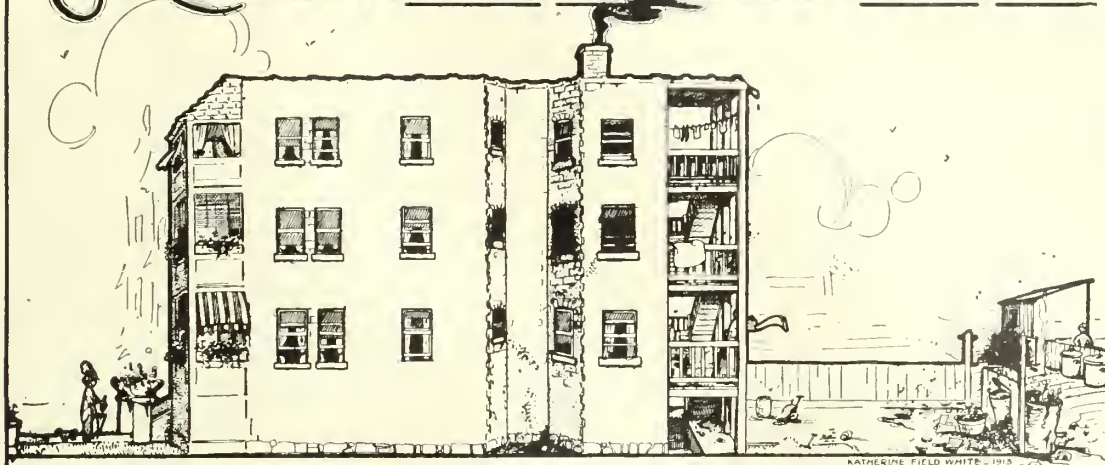


ON FOOD THAT'S SOILED BY DIRT, FLIES, FINGERS
THE SEED OF ILLNESS OFTEN LINGERS. - - -



Drawn by KATHERINE FIELD WHITE-1915

THINGS ARE NOT ALWAYS WHAT THEY SEEM— THERE'S MANY A SWELL FRONT WITH A SWILL BACK



Your back yard reflects your habits of cleanliness.
What impressions are your neighbors getting from your back yard?
A dirty neighbor is a menace to neighborhood health.
A dirty neighbor will do more to depreciate residence property values, than most anything else.
If you value your reputation, your health or your property—Keep clean and see that your neighbors Keep clean.

Chicago Health Department. Educational Poster No. 167

Designed by, Dr. C. St. Clair Drake

Early rising is yeast in the health dough.
Then, too, you gain by an early bedtime.

How about a clean-up this fall? Why not get busy?

Wash your vegetables and fruits. They may come to you with little or no attention given as to cleanliness. Particularly is this true of peaches and other fruits which are often marketed on the sidewalks, exposed to street dirt. To be safe, all fruits with rinds should be pared before eating.

Vice is closely related to all diseases, because of excesses, but more directly the producer and incubator of those dirty diseases which, for politeness sake, are called "social diseases." Efficiency wanes in the "red-light neighborhood;" for how may anyone show efficiency if he be disease-laden and full of alcohol, to say nothing of the insidious moral effect of such associations?

From Bulletin Chicago Department of Health.

NEW AND NON-OFFICIAL REMEDIES.

Since publication of New and Nonofficial Remedies, 1914, and of the supplement to New and Nonofficial Remedies, 1914 (July 1, 1914), the following articles have been accepted for inclusion with "N. N. R.":

Fougera & Co., Electrargol for Injection, 10 cc. Ampules.

Hynson, Westcott & Co.: Urease-Dunning.

H. K. Mulford Co., Hypodermic Tablets of Emetine Hydrochloride.

Waukesha Health Products Co., Hepco Flour, Hepco Dodgers, Hepco Grits.

E. Fougera & Co., Electrargol. At the request of the manufacturer, Comar & Co., Paris, the council has recognized E. Fougera & Co., New York, as the American selling agents for the product. Also in view of information received from Comar & Co. it has modified the new and Nonofficial Remedies description for Electrargol to indicate that this product now contains the equivalent of .4 per cent of metallic silver.

Book Notices

A MANUAL OF PRACTICAL HYGIENE. For Students, Physicians and Health Officers. By Charles Harrington, M. D., late Professor of Hygiene in the Medical School of Harvard University. Fifth edition, revised and enlarged by Mark W. Richardson, M. D., Secretary to the State Board of Health of Massachusetts, in collaboration with the following officials connected with the Massachusetts State Board of Health: W. H. Clark, Chief Chemist; X. H. Goodnough, Chief Engineer; William C.

Hanson, M. D., Assistant to the Secretary; Hermann C. Lythgoe, Chief Analyst of Food and Drug Department, and George H. Martin, formerly Secretary to the Massachusetts State Board of Education. Octavo, 933 pages, with 125 engravings and 24 plates in colors and monochrome. Cloth, \$5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

As preventive medicine comes more in vogue the more important becomes the study of hygiene. This fifth edition of Harrington's Practical Hygiene is an extensive work, covering a vast number of subjects. The various subjects are studied in a practical way and illustrations are used freely.

The book will be found of immense value to health boards, and it is a work that may well be studied by all school and factory inspectors, or any one interested in public hygiene. It will be a valuable addition to the doctor's library.

DISEASES OF THE SKIN, INCLUDING THE ACUTE ERUPTIVE FEVERS. By Frank Crozer Knowles, M. D., Instructor in Dermatology in the University of Pennsylvania; Clinical Professor of Dermatology, Women's Medical College of Pennsylvania; Fellow of the College of Physicians of Philadelphia, etc. Octavo, 546 pages, with 199 engravings and 14 plates. Cloth, \$4.00, net. Lea & Febiger, Publishers, Philadelphia, and New York, 1914.

A new work on skin diseases, by Dr. Frank C. Knowles, is fresh from the presses of Lea & Febiger. It is a book which will be of value primarily to the medical student, but will also be of good service to the general practitioner.

It seems to cover the entire field. Many of the subjects are treated briefly, yet clearly, and a large number of photographs illustrate the text greatly. The author has laid especial stress on treatment, the various methods being clearly and definitely outlined.

We recommend it to the student or general practitioner.

LOCAL ANESTHESIA: ITS SCIENTIFIC BASIS AND PRACTICAL USE. By Professor Dr. Heinrich Braun, Obermedizinalrat and Director of the Kgl. Hospital at Zwickau, Germany. Translated and edited by Percy Shields, M. D., A. C. S., Cincinnati, Ohio, from the third revised German edition. Octavo, 399 pages, with 215 illustrations in black and colors. Cloth, \$4.25 net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

This work on local anesthesia should be welcomed by the American profession, and every physician should possess a copy. In America, at least, local anesthesia has not as yet reached the place in surgery which surgeons have hoped for. Nearly every physician has, at various times, attempted at least minor operative procedures under local anesthesia, with unsatisfactory results.

A reading of Professor Braun's book will convince one that many failures at local anesthesia have resulted because the operator has not understood thoroughly the principles and technique. Various monographs in English have overestimated one method, and have applied one method for all tissues and all anatomical structures. This the author has convinced

the reader is wrong. The 215 illustrations and photographs clearly demonstrate the method to use for best results in surgical procedures on every portion of the body.

We recommend this book to every practicing physician.

PRACTICAL HORMONE THERAPY: A MANUAL OF ORGANOTHERAPY FOR GENERAL PRACTITIONERS. By Henry R. Harrower, M. D., late Professor of Clinical Diagnosis, Loyola University, Chicago; Fellow of the Royal Society of Medicine; Member of the American Editors' Association, etc. With a foreword by Professor Dr. Arthur Biedl, Vienna. Demy 8 vo., pp. xx-488, with 5 figures, 1914. London: Bailliere, Tindall & Cox, New York. H. R. Harrower, 880 W. 180th St., \$4.50 net.

Opothrapy or treatment by the use of animal extracts, while largely employed on the continent and especially in France, is less popular in this country and Great Britain. The present work is an attempt to collect from the literature, particularly abroad, the principal references to the therapeutic indications for these extracts for the use of practitioners in these countries.

After a section on "Preliminary Considerations," in which the action of hormones, fundamental principles of hormone therapy, etc., are considered, the many hormones now available are taken up in order: Those from the pancreas, spleen, liver, thyroid, thymus, kidney, adrenal, pituitary body and epiphysis, testes, ovary, placenta, lungs, lymph and carotid nodes. Moreover, several allied substances are also discussed, such as bile, lipoids, pluriglandular extracts, etc.

To each chapter is appended a list of the more important papers, and in addition there is a list of the principal books on the internal secretions and cognate subjects.

As the title implies, the work is eminently practical. Theory is avoided save enough to render the practical hints intelligible. The indications and doses of each of the hormones are collected together in chapter XXXVI, which is truly a *multum in parvo*.

For the purpose of rendering the work more authoritative, many chapters have been submitted to well-known investigators for their criticism, for example: Hertoghe of Antwerp (thyroid), Beebe, New York, (parathyroid), Ewald of Berlin (secretins), Lepine of Lyons (pancreas), Schafer of Edinburgh (pituitary body), and Starling of London (thyroid).

The work forms an admirable companion to the strictly scientific treatises of Swale Vincent and of Biedl. The distinguished author last named contributes a very appreciative preface, and we can do no better than to emphasize his words: "All those concerned, whether theorists or medical practitioners, will be grateful to you for your labors."—J. B. Murphy.

BOOKS RECEIVED.

THIRTY-SEVENTH ANNUAL REPORT OF THE BOARD OF HEALTH OF THE STATE OF NEW JERSEY, 1913, AND REPORT OF THE BUREAU OF VITAL STATISTICS. Pater-son, N. J., News Printing Co., State Printers, 1914.

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Original Articles

THE ADVANTAGES AND DISADVANTAGES OF THE INTRA-CAPSULAR CATARACT OPERATION, AS PRACTICED BY LIEUTENANT-COLONEL HENRY SMITH OF INDIA.

W. L. NOBLE, M. D.,

Professor of Ophthalmology of the Illinois Post-Graduate Medical School; an Ophthalmologist of the West Side Hospital of Chicago.

CHICAGO, ILL.

In considering the Smith cataract operation, we will follow his technic, step by step, commenting on the same as we proceed:

Preparation. The patient in a recumbent position on a suitable table, the operator standing at the head of the table, the usual cleansing of the lids, brow and face, and the cutting of the eyelashes to prevent contamination of the knife, have been used so universally for so long a time, that no comment is necessary. His technic of obliterating the folds of conjunctiva at the upper fornix by sliding the brow firmly upward on the bony background, while lifting the lid from the eyeball with a speculum, and flushing the space with a $\frac{1}{2}$ -inch current of warm antiseptic solution, is unquestionably a most efficient method of preparing the eye for an operation. We have all irrigated eyes before, but I know of no technic so simple, so complete and so efficient as this, and too much emphasis cannot be placed on the large size stream and consequent volume of solution which enters the eye.

Corneal section—*R. E.* In making the corneal section on the right eye, Dr. Smith stands behind and at the head of the patient, who is in a reclining position. An assistant applies the thumb of his right hand to the eyebrow of the patient, to keep it under control during the sec-

tion about to be made. "The operator grasps the conjunctiva below the cornea with a simple fixation forceps, giving the forceps a quarter turn to afford better anchorage in the conjunctival tissue." To my mind and according to my experience this is very faulty technic. There is no such thing as fixing the eyeball by grasping the conjunctiva, even if you make a dozen turns of the forceps to secure better anchorage. At the best, you can only *approximate fixation*. The fixation forceps should be placed on the eyeball over the capsular and tendonous attachment of the inferior rectus muscle and the tendon and capsule attachment of the muscle should be included between the blades of the forceps. If these directions are followed, the eyeball is fixed and will respond at once and positively to any force applied through the forceps. The operator has a positive sense of co-ordination between his two hands after the point of his cataract knife is placed against the cornea and until the completion of the incision. The conditions of both eye and knife would have to be exceptionally favorable for a skilled operator to make any other section than Smith's, without great danger to the patient, if he used this conjunctival fixation as credited to Smith; because the ease with which the section is made bears a direct ratio to the angle at which the blade of the knife is turned from the plane of the iris, and where that angle is from 15 to 30 degrees, as practiced by Smith, it is indeed easy to make the section. This explains the fact that he starts his section at the equator and is thus compelled to incise so large an area of the circumference of the cornea. The reverse is correspondingly true if you include only one-third of the circumference of the cornea in your section: you must keep close to and cut on the plane of the iris to get an adequate opening and this necessitates skill, a delicate sense of touch, and fine technic. Furthermore,

the patient has less severed corneal tissue to keep in apposition and to heal, and correspondingly less chance of an adverse result.

Position of knife in hand. Smith holds the knife lightly between the first finger and thumb of the right hand, resting on the inner edge of the second finger and the third or fourth finger, or both, resting against the side of the face. Thus, with a movement of the fingers, without changing their position or the handle of the knife, or the position of the fingers on the face, the puncture and counter-puncture is made at the equator, including the conjunctiva at both puncture and counter-puncture. This method of holding the knife was taught me over twenty-five years ago by the late Dr. Hotz of Chicago, who never claimed any originality for it. This is certainly a natural position and one that admits of the greatest possible efficiency and accuracy in directing the incision. In the Smith operation "the blade of the knife as it enters the cornea is turned up away from the plane of the iris from fifteen to thirty degrees and as soon as the point of the knife emerges from the cornea, the cutting on the nasal side of the cornea begins as the blade is shoved through, the portion of the blade near the handle remaining stationary and, to some extent, acting as a fulcrum; upon the withdrawal of the blade, the cutting begins on the temple side until only the point remains in the nasal side of the cornea, when the section is supposed to be complete by the turning of the blade of the knife at nearly right angles to the plane of the cornea cutting out in clear corneal tissue. When this section is completed, about one-half of the circumference of the cornea is intact and the cut section will break at the point of least resistance—turning back like a door on its hinges," which is very necessary in this method of extraction. But what about the *support* given by the *resiliency* of the corneal tissue to hold the cut section in apposition, after the lens is removed? If you are in doubt as to whether this resiliency of the corneal tissue plays any part in holding the several portions in apposition, make a section on a rubber ball beginning at the vertical center and then one at any point between the vertical center and the periphery and notice the increased force that is necessary to free the section as you approach the periphery, as com-

pared with the section made at the vertical center. In my opinion, the ideal section—the one which gives the most advantage to the patient—is the one which is the farthest removed from the vertical center, consistent with the removal of the lens, without undue trauma. As to the method of starting the incision with the point of the knife on the nasal side, as soon as it emerges from the corneal tissue and then the return cut on the temple side, starting at the point of the blade nearest the handle, I consider it good practice, but I question whether any originality can be claimed by Dr. Smith for this procedure, more than the unusual emphasis which he places upon it, because, in my observation, it has been the practice of good operators for years to make the section with a free and complete sweep, avoiding the sawing motion as much as possible, thus favoring perfect adaptation of the cut surfaces in healing. *It is interesting to note*, in this connection, the confidence with which the statement is made by Smith that the section, as practiced by him, "being at right angles to the surface of the cornea throughout, there are no thin, knifelike edges to curl, retract or override—the wound apposition is perfect." It seems remarkable that this statement should be made when the facts are perfectly apparent that no section can be made through corneal tissue on a plane with the iris and be at right angles to the layers of the cornea or the surface thereof. The most that can be truthfully claimed for an incision being at right angles to the surface of the cornea, is that the incision approximates nearer a right angle with the surface of the cornea, the closer it is to the sclero-corneal junction. But Smith's incision leaves the sclero-corneal junction the instant he begins to cut, as the cutting edge is turned up and away from the plane of the iris from 15 to 30 degrees. So it must follow that his incision in the very nature of things cannot be at right angles to the surface of the cornea. On the contrary, it is much further from being at right angles to the surface of the cornea than an incision made close to the sclero-corneal junction on a plane with the iris. Consider making an incision through an orange on the plane of the horizon so it will be at right angles to the surface of the orange. Where will you have to make it? Exactly on the equator—exactly in the center of the orange (assuming the orange is round). Now, the cornea is not a

hemisphere; it is much less than half a sphere, therefore it can have no equator on the plane of the iris, and no incision can be made at right angles to its surface when on the plane of the iris. But let us consider further the claim of Smith of perfect adaptation of the cut surface of the cornea because of a right angle incision to its surface. He starts at the sclero-corneal junction where he is nearest to a right angle incision with the surface, as we all do, but with the edge of the blade turned up 15 to 30 degrees, he begins to move away from the sclero-corneal junction as soon as he begins to cut and at points in the incision must be many millimetres from the same, because "he aims to cut out two to three millimetres below the limbus above, well in the corneal tissue and often just opposite the halfway line between the upper pupil margin and periphery of the iris." Now, the American surgeon who starts his incision just as near as possible to the sclero-corneal junction and continues it as near as possible on a plane parallel with the iris, and cuts out at the sclero-corneal junction or in the episcleral tissue, *so far as approximate* right angle adaptation of cut corneal surface is concerned, has Smith's section beaten 5 to 1, and the advantage of quick healing and lessening the chances of unfavorable results rest with the old cataract section rather than with Smith's.

The contention of Dr. Smith that with his corneal section there is no hemorrhage, applies with equal force to the ordinary section made parallel to the plane of the iris and close to the sclero-corneal junction, when brought out in the episcleral tissue. As to the possibilities of hemorrhage where the section is brought out with a conjunctival flap, my observation and experience in over a thousand cataract operations, covering a period of more than twenty years, is that instead of hemorrhage almost invariably taking place where a conjunctival flap is included in the section, it *rarely* occurs; and the cases where it is liable to take place can be quite accurately determined before the operation. The inversion of the conjunctival flap in the anterior chamber, which he mentions, I have never seen occur.

His contention that a greater astigmatism is present where the incision is terminated at the sclero-corneal junction or with a conjunctival

flap, as compared with the corneal section which he makes, has not been substantiated by my experience and I think the reverse would be true on theoretical grounds.

Regarding Dr. Smith's assertion that the section terminating at the sclero-corneal junction, or with a conjunctival flap, is too far back for primary safety of the eye, because of the danger of loss of vitreous, I would answer in the same manner, that this objection is not justified by the facts that have come to me, and the statement seems remarkably strange and far-fetched when coming from a man who advocates a corneal section and a method of procedure for the extraction of the lens where there is ever present such grave danger of loss of the vitreous and possibilities of infection.

The contention of Dr. Smith that the presence of the capsule in the eye after an extraction of the lens with the possible presence of cortical substance and other debris, is responsible for and is almost invariably accompanied by iridocyclitis, is not well taken. In my opinion, the irido-cyclitis is primarily caused from excessive trauma to the eye during operation or the presence of infectious material introduced into the wound. To say that it is due to the presence of capsular or cortical substance remaining in the eye after the extraction of the lens, would be to imply that in the Smith procedure for the extraction of a cataract there could be no iridocyclitis following the operation.

Iridectomy. "The operator holds the iris forceps (of special design) between the thumb and the first finger, at approximately right angles to the plane of the iris, the remaining finger being used to hold up the brow to prevent squeezing. The grasping end of the forceps is turned parallel to the line of incision, with an assistant holding the eye down in the desired position, by means of a fixation forceps. The operator then opens the iris forceps and places the blade nearest him just within the wound, against the upper edge of the cut, and the farther blade of the forceps well down on the *outside* of the cornea, at a point corresponding to the upper margin of the pupil, the forceps being held at right angles to the iris. The upper blade of the forceps is to remain in its position while the lower blade is closed over it, at the same time slightly depres-

sing the cornea and causing the iris to bulge upward in the wound. Then the blade on the outside of the cornea is released, turned and in conjunction with the blade against the upper edge of the wound, made to grasp the bulging iris, which is cut with the iridectomy scissors. As a result sometimes a large coloboma, sometimes a slight coloboma forms at the pupillary margin, not extending back to the roots of the iris. At other times, there is a buttonhole in the iris with both the pupillary margin and the periphery intact." Smith's own experience and that of other operators has confirmed the fact that the shape and size of the iridectomy is under very little control by the operator.

Of all the methods for iridectomy, this is, to say the least, the most unique of any that I have ever had called to my attention. The excuse given for it is that to insert the iris forceps into the wound and to grasp the iris at its pupillary margin would endanger lacerating the capsule and thus complicate the operation. Of all the steps in Smith's operation, this, to my mind, is the most illogical, inconsistent and ill-advised. For an operator to traumatize more than necessary the delicate epithelial layers of the cornea in the extraction of a cataract, is inexcusable. The procedure, in my judgment, is about as inexcusable as to use a pair of iridectomy scissors which were so rickety and loose in the joint that by reversing the cutting act, the blades could be made to gap at least a quarter of an inch, as mentioned by Vail in his description of this operation. The practice of this method of iridectomy because the operator is afraid that he may lacerate the capsule, seems to me a confession that he is lacking in the delicate sense of touch and fine technic which are considered an essential requisite for ophthalmic surgery in America.

Expressing the Lens. "The assistant is placed on the left of the patient and holds the lid hook between the thumb and index finger, while the last two fingers are braced against the eyebrow, forcing it back over the forehead to prevent spasmodic contraction. The operator now takes the double spoon in the fingers of his left hand, the lens hook in the right; the spoon is placed under the assistant's arm to be in readiness in case of trouble with the vitreous; the bulb of the lens hook is then placed against the surface of

the cornea a little below the margin of the pupil or half way between the lower margin of the pupil and the periphery of the iris; pressure is then made positive, firm, and considerable, directly down and back in a line with the optic nerve, tilting the inferior surface of the lens down and the superior surface engaging it in the wound of the cornea. With manipulation it is worked out, the edges of the corneal wound placed in apposition and the eye closed. In case the vitreous presents itself before the lens, the spoon is placed in the wound, holding the vitreous back, while the lens is engaged sliding against the spoon which aids its expression."

Anyone first observing this method of delivery of the lens in its capsule will certainly be surprised when he sees the extreme force applied on the cornea, necessary to force the lens and capsule from their moorings. This is the technique of Dr. Smith's operation, above all the rest, which is spectacular and which elicits the admiration of the observer when he sees the lens raise and successfully engage itself in the open wound, but the amount of force applied against the surface of the cornea is far in excess of any force applied in the ordinary method of extracting the lens after the capsule has been severed.

The statement has been made by certain of our colleagues in advocating and defending the Smith intracapsular operation, that it is practically free from post-operative inflammation, while in the old operation iritis and irido-cyclitis is only too frequent, and that in the intracapsular operation there is no secondary operation, the patient being usually ready to be discharged nine days after the operation. As to whether this statement is accurate, founded on facts and experiences, I desire to submit extracts from a series of cases operated on after the Smith method at the Illinois Charitable Eye and Ear Infirmary by Drs. Reen of Dayton, Ohio, Vail of Cincinnati, and Fisher of Chicago. Each case is designated by its number on the records of the Eye and Ear Infirmary, and the facts herein stated can be verified from the same.

Case No. 37,905. Aged 60. Smith operation by Dr. Fisher, L. E., 1/30/14. Under date of 2/4/14, reported ciliary injection, moderate degree. Under date of 2/9/14, slight ciliary injection. Under date of 2/28/14, clearing more rapidly past few days. Under date of 3/9/14, discission; under date of 3/10/14,

shows minimum amount of injection. Discharged 3/11/14; vision, left eye, 22/100.

Case No. 37,912. Aged 49. Smith operation by Dr. Fisher, R. E., 1/30/14. Some vitreous lost. Date, 3/9/14, record of poor vision caused by remaining capsule. Date, 3/27/14, needling of right eye. 4/10/14, same portion of capsule left. Patient discharged; vision, R. E., 20/100.

Case No. 37,977. Aged 56. Smith operation by Dr. Fisher, R. E., 2/13/14. Under date of 3/6/14, recorded poor vision due to remaining capsule. Under date of 5/28/14, readmitted with a diagnosis of secondary cataract. Under date of 6/8/14, patient informed nothing more could be done to improve vision. Discharged 3/18/14, vision 4/200.

Case No. 37,867. Aged 73. Smith operation by Dr. Fisher, L. E., 1/30/14. Under date of 2/9/14, slight ciliary injection; some capsule present. Patient discharged 3/20/14, vision, L. E., 20/70; no lens; high myopia.

Case No. 29,415. Aged 81. Smith operation by Dr. Green, R. E., 4/18/10. Discharged 6/7/10, vision R. E., 20/80.

Case No. 29,559. Aged 66. Smith operation by Dr. Fisher, L. E., 5/13/10. Discharged 6/15/10; vision 20/40.

Case No. 32,382. Aged 57. Smith operation by Dr. Vail, R. E., 10/22/11. Hemorrhage in anterior chamber. 12/27/11, needling. 1/3/12, eye irritated, reflex blur. 1/15/12, vision 20/32. Discharged 1/16/12.

Case No. 3,247. Aged 49. 11/20/11, Smith operation by Dr. Vail, R. E. Discharged 12/12/11, vision 20/25.

Case No. 32,551. Aged 70. Smith operation by Dr. Green, L. E., 11/20/11. Operation attempted, capsule ruptured, and an ordinary extraction was performed. Discharged 1/7/12, condition not improved; vision—shadows.

Case No. 29,414. Aged 56. Extraction, Smith operation, L. E., 4/18/10, by Dr. Green. 4/27/10, keratitis. Discharged 7/7/10, left eye, vision, 20/50.

Case No. 29,287. Aged 69. Smith operation by Dr. Green, L. E., 4/18/10. 4/23/10, not much reaction. Discharged 5/25/10, vision 20/50 plus.

Case No. 29,372. Aged 56. Smith operation by Dr. Green, L. E., 4/18/10. 4/22/10, very little reaction. No pain. Corneal wound not definitely healed. Inner half of upper lip overrides corresponding portion of lower lid. Pupil widely dilated. Discharged 5/25/10. Vision 20/50.

Case No. 27,123. Aged 75. Smith extraction, right eye, by Dr. Green, 9/18/08. Discharged 10/9/08, vision 20/30-2.

Case No. 27,118. Aged 56. Smith operation, R. E., by Dr. Green, 9/15/08. Capsule ruptured, leaving a small portion behind in anterior chamber. 9/26/08, still irido-cyclitis present. 10/9/08, complains of pain about eye; given salicylates. 11/17/08, needling. Discharged 12/30/08, condition improved; no record of vision.

The above list of fourteen cases were all operated on after the Smith method by men who had

taken personal instruction under Smith at his clinic in India and each of whom had been allowed the "rare privilege" of doing several hundred intra-capsular extractions in Smith's clinic under his personal supervision. Of these fourteen cases the average time they remained in the hospital from the time of the operation until their discharge, was fifty-four and one-half days. The shortest time any one of the fourteen was in the hospital, after the operation and until discharge, was twenty-one days. The maximum time was one hundred and six days. Of these fourteen patients operated on after the Smith method, ten showed evidence of post-operative inflammation; of the other four there is no history to indicate there was any post-operative inflammation, and it is interesting to note that these four cases were discharged with vision of 20/30, 20/25, 20/40 and 20/80. Of the 14 cases there were 6 needled after the extraction of the cataract. One of the 14 was discharged with no record of vision, one with a record of shadow for vision and one with a record of 4/200 vision, two with a record of 20/100 vision. Of the 14, only 3 had vision of 20/30 or better.

I am well aware that the results in 14 cases in any operative procedure should not be held as conclusive as to the value of the same, but I do consider it a conclusive refutation of the assertion that this operation is practically free from post-operative inflammation, and also a refutation of the assertion that the irido-cyclitis, when following a cataract extraction, is due to the presence of the capsule. The fact that 6 of these cases were needled after the operation—some of them with indifferent or negative success, is also suggestive because if the lens were removed in its capsule, as contended, nothing remains in the eye to be needled except any inflammatory exudate, and every ophthalmic surgeon appreciates the danger and difficulty of opening up a pupil which has been closed by an inflammatory exudate.

In conclusion, a careful study of the detail of the technique of the intra-capsular cataract operation as advocated by Dr. Smith, tends to the opinion that this technic is purely an individual one, determined by individual peculiarities and the unusual conditions and environments in which he found himself placed in regard to patients. One who has observed the first efforts of

ophthalmic internes to do their first cataract operation, even after they have had careful instruction on pig's eyes and have had the privilege of observing many operations, will note the almost universal tendency in beginning their corneal incision, to turn the blade of their knife up from the plane of the iris as if they were over-anxious to finish their section or as if they were afraid of engaging the iris on the blade of the knife. In short, this is the corneal section which you would expect a man to make who had never had any careful training and preparation for his work by one who had availed himself of the accumulated knowledge of the past on the subject. The same is true of his method of doing an iridectomy. To introduce the iris forceps in the wound beneath the cornea, secure the iris, withdraw and hold the same while it is cut, requires skill and training. I can readily see how a man lacking this delicate fine technic would resort to expressing the iris through the wound by pressure on the surface of the cornea. Dr. Smith's inexhaustible cataract supply has enabled him to reach the maximum of efficiency in this method of extraction, because repeated practice will develop a sense of knowledge as to the amount and direction of the force that is desirable to use in expressing the lens, with a minimum danger of shoving the vitreous along with it. This operation is probably the best operation which Smith could do, because the procedure to him is a natural one, or he would never have adopted it, and because he has had an unlimited opportunity to practice the same; and because of the multitude of poor people who come to his own clinic he is unable to give the post-operative attention which civilized people have a right to expect, because he has trained assistants in whom he can place confidence to do what is necessary and essential at each step in the operation.

I do not consider that this operation, as practised by Smith, has any advantage over the usual operation; on the contrary, I am convinced after careful study and reflection that the reverse is true and that the exploitation of the same in this country is adverse to the best interests of the patients, and if followed to any considerable extent, will result in discredit to the majority of ophthalmic surgeons who practice the same.

I have no fear that any considerable number of American ophthalmic surgeons will adopt the

Smith intra-capsular method for cataract extraction if they will carefully consider his technic step by step as I have endeavored to do in this paper, before they attempt the same.

THE TREATMENT OF SENILE CATARACT BY THE GENERAL PRACTITIONER.

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The first attention to be given a patient with beginning senile cataract would often be given by the family physician and probably come under the heading of medical treatment, if a diagnosis of incipient cataract had been made. In order to accomplish anything by medical treatment, a diagnosis of opacity of the lens in the incipient stage is necessary. The general practitioner should be the first to make such a diagnosis, but it has become an old story that none but an oculist is prepared to recognize diseases of the eye. If opacities of the lens are to be kept from progressing and be absorbed or removed, the diagnosis must be made in the beginning and the general practitioner must make these diagnoses if anything is to be expected from medical treatment. Unfortunately all medical men cannot make a diagnosis of opacity of the lens, but should, since it is such an easy thing to do.

The ophthalmoscope in medical diagnosis. It is impossible to make a diagnosis of beginning cataract without the ophthalmoscope and if this instrument is approached in the proper manner, it will be found a very interesting and useful adjunct to the general physician, not only to make a diagnosis of incipient cataract, but also in making diagnoses of many fundus lesions that occur in diseases observed in the general practice of medicine. Lesions found back of the lens are as easy of diagnosis as opacities of the lens if the general physician can use the ophthalmoscope. Ophthalmoscopy is a very difficult subject if the student relies upon patients and books for instruction, but there are many models on the market that will aid the practitioner in the study of ophthalmoscopy. The author's schematic eye for example is intended to provide a complete clinic that anyone may study whenever he has the time and inclination. Two normal and twenty-

two pathological fundi are represented in the model Fig. 1. The study of ophthalmoscopy with this model is quite interesting and any general practitioner can become master of the subject in a surprisingly short time. The most difficult thing to do in ophthalmoscopy is to illuminate the interior of the eye. This can be done quite satisfactorily by the use of an empty spool of thread. Fig. 2. Make cross marks or a screen on a piece of white paper, paste it on one end of a spool and reflect the light into it with the ophthalmoscope and examine the screen you have made. Get as close as you can to the spool when it is illuminated and put on the glass in the ophthalmoscope that will bring out the picture on the back of the spool. This will be found to be a

incipient cataract can be as easily and positively diagnosed as any disease of the eye.

Focal illumination. Before an ophthalmoscopic examination is made the eye should be carefully inspected for opacities of the cornea and lens. If there are no visible opacities of the cornea and lens, the eye should be examined in the dark room by focal illumination with a lens of two-inch focus. Opacities of the lens may be brought out in this manner that could not have been discovered by inspection. Opacities found by this method appear in their normal color, dark objects on the cornea appear dark, and white objects white, in sharp contrast to their color when seen with the ophthalmoscope. Opacities of the cornea, lens or vitreous always appear dark

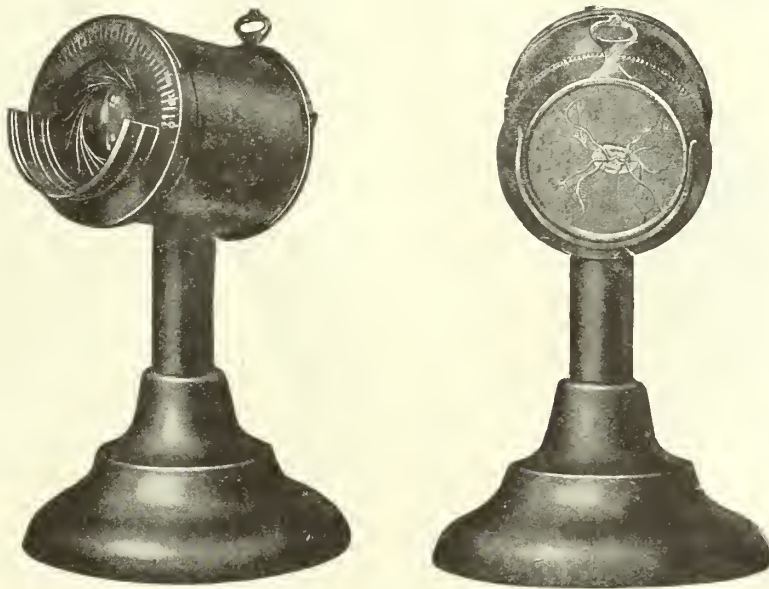


Fig. 1. Fisher's Schematic Eye, Two Views.

very satisfactory method of mastering the light. When you can reflect the light into the spool quickly, you will find it a simple matter to illuminate the eye in the same manner.

Medical men and medical students are supposed to have a working knowledge of the microscope; but how many have a working knowledge of the ophthalmoscope? A working knowledge of the ophthalmoscope for medical men can be much more easily acquired than the microscope. There is some excuse for some young medical men not possessing a microscope on account of the price of the instrument; but the ophthalmoscope is inexpensive. With the ophthalmoscope

on a red back-ground, with the ophthalmoscope. If there are no opacities found by focal illumination, the ophthalmoscope should be used.

Ophthalmoscopy in beginning cataract. If a plus 16 lens is placed behind the aperture of an ophthalmoscope and the light reflected into the eye, there will not be any difficulty in making a diagnosis of opacity of the lens because it will appear black on a red background. The only thing necessary to make these opacities plain is to have the observer place his eye 2 inches from the eye he is examining. A little practice will make the examination a very simple matter, but before any attempt is made toward the examina-

tion of a patient, the light should be mastered as above. If the light is mastered, the diagnosis of lesions behind the lens is made possible. There was a time when medical schools did not demand a great deal of ophthalmology from its students, but the teaching time has been lengthened and every known device has been placed in the laboratories for medical teaching and we may look forward to the time when general practitioners will be able to make diagnoses of beginning cataract. If the general practitioner is unable to diagnose incipient cataract, a paper upon the treatment of it would be out of place in this society, but let us hope the time has come when the general practitioner is anxious to use the ophthalmoscope and interpret its revelations. Having mastered the instrument any patient with cataract in the early stage may expect sound advice and rational treatment.



Fig. 2. Spool.

Treatment. The subject of treatment must be divided into medical and surgical. The general practitioner can accomplish as much by medical treatment as the oculist and he should treat such cases, because he is usually the first to be consulted. I need only mention the importance of a general physical examination including an examination of the urine and the blood pressure. The cause of opacities in the lens can often be found from these examinations and who is more capable of treating the patient's general condition than the general practitioner? If no physical defect is discovered, the blood pressure is found to be normal and the urine normal, no internal medical treatment can be expected to be of any value.¹

Some good has been reported from weak solu-

tions of iodide of potassium used in an eye cup or dropped into the conjunctival sac three or four times a day; but I am of the opinion that good results are unusual from drugs used in this manner.

I had the rare privilege of working in Lieut. Col. Henry Smith's clinic, October and November, 1913, at Amritsar, India, and not only witnessed his treatment of beginning cataract, but had the unusual opportunity to extract 576 cataracts in their capsules. Since that is a very large number of cataract operations performed by any method in the career of any busy oculist, I feel that I have the right to compare the results of this method with that of the old before I close my paper.

Lieut. Col. Henry Smith injects 20 drops of a 1 to 4,000 cyanide of mercury under the conjunctiva for beginning cataract and when we know he has had more experience in opacities of the lens than any other man living or dead, we should at least give his treatment some consideration. The injection is painful, but it is not necessary to repeat it. To make the injection less painful 5 drops of a 4 per cent solution of cocain may be added to the fluid injected and the eye should be cocainized 5 minutes before the injection is made. I am not prepared to state how much benefit will follow such treatment, because I was not in India long enough to follow the cases. I will say, however, that Col. Smith has had a most wonderful experience and has great faith in the cyanide treatment. He has prepared a paper for July of this year in St. Petersburg on the early treatment of cataract, and any who are interested in it will find the paper in a short time in medical literature, probably in the *British Medical Journal* or the *Indian Medical Journal*. The diagnosis of beginning cataract can be positively made by the general practitioner if he can use the ophthalmoscope and if he cannot he will learn if he will devote just a little time to it. The medical treatment is in his keeping and should he choose to treat his patients, he can do so just as well as the oculist because the treatment is so simple.

The surgical treatment. Great advances have been made in the method of extracting the lens in immature cataract, and the operation in capsule has been made possible by Lieut. Col. Henry

1. Risley: Ophth. Record, 1912.

Smith of Amritsar, India. Most ophthalmic surgeons will admit that if the lens can be removed in its capsule without more danger to the eye than by the old method, that it is the proper method. Text books assert that the intra-capsular operation is by far the best method but it takes special skill to perform the operation. I will admit that it takes skill to successfully perform any kind of a cataract operation. Since I have had the rather rare privilege of extracting so great a number of lenses in their capsules, I believe I am in a position to see all the advantages of this operation over the old method.

Advantages of the Intra-Capsular Operation. The intra-capsular operation has some advantages over the old method. It can be performed as soon as the patient is conscious of enough loss of vision to prevent him from doing his ordinary duties. The intra-capsular operation is practically free from post-operative inflammation while in the old operation, iritis and irido-cyclitis is only too frequent. In the intra-capsular operation moreover, there is no secondary operation and the patient is usually ready to be discharged soon after the first dressing, nine days after the operation. There are many operators who have formed an unfavorable opinion of the intra-capsular operation, some on general principles and some from experience. I feel that no one should criticise an operation that has proven a failure in his hands when he knew at the time of the operation that he was not familiar with its technic. I have made the Smith technic simple by giving the profession a lid hook that will hold the upper lid away from the eye and which can be used by an assistant with little experience and this experience can be acquired by holding the lid away from the eye, on any eye that has been cocanized. The want of a highly trained assistant and the frequent loss of vitreous has caused many good operators to make serious objections to the intra-capsular operation, but I feel that I have placed these two great obstacles where they can be overcome by good operators.

Summary. In conclusion I would urge the general practitioner to familiarize himself with the ophthalmoscope, make a diagnosis of beginning cataract early, treat his patient or have him treated properly and if treatment is not success-

ful have an operation. I am an advocate of the intra-capsular operation because I believe better vision is obtained and it does not require a secondary operation. The patient is under the oculist's care less than half the time required by the old operation. He would be practically free from post-operative inflammation, and last, but most important of all, he could be operated upon successfully as soon as he is unable to attend to his ordinary duties, when his health and spirits are good, not waiting for months and years after he had been classed as an old and useless blind man.

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THE INDICATIONS FOR OPERATIVE INTERFERENCE IN GLAUCOMA.*

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It is impossible to define any empirical indications for operative interference in glaucoma, for no two cases present the same combination of features; no two patients have the same degree of resistance, nor do any two ophthalmologists have the same beliefs in this regard. But there are certain generalities that cannot be neglected and of recent years, there has been a growing tendency to overlook these features, due probably to the many new operations that have been introduced into the field of anti-glaucomatous therapy. Consequently, let us briefly consider the various types of glaucoma, the indications for operation in each type, and the operation best suited to cope with the disease in its various manifestations.

Acute inflammatory glaucoma, or glaucoma uncompensatum. The first prodromal attack of this type of the disease seldom, if ever, requires operative interference during the inflammatory stage. The main point is, whether a prophylactic operation should be performed during the first few days of succeeding quiescence. Although there is a great deal of variance inside the profession in this regard, the answer lies rather with the patient than with the beliefs of the operator. If the patient is of the intelligent type, one who can be trusted to follow the necessary local and general regulations, and one who will appear at

*Read at the sixty-fourth annual meeting of the Illinois State Medical Society at Decatur, May 20, 1914.

the first sign of trouble, the operation may be indefinitely postponed. On the other hand, clinical patients and those of lower intelligence who will immediately relapse into their former habits, cannot be trusted and upon such cases a prophylactic operation is indicated, irrespective of the severity of the attack.

The operation here indicated is, of course, the classical iridectomy. However efficient it may be, there are still several drawbacks connected with it that render waiting as long as possible advisable. There is no need to dwell at length upon the dangers of infection, vitreous prolapse, or traumatic cataract, upon subsequent corneal astigmatism, retinal circles of diffusion, or the inexplicable decrease in vision. For these reasons, and because an iridectomy performed during a second or third attack yields equally efficient results, I prefer to postpone operative interference in intelligent patients as long as possible.

But occasionally a first, or more frequently, a subsequent attack fails to yield to our therapeutic measures and we are forced to resort to operative interference. In the acute inflammatory type of glaucoma, it can usually be determined within sixty hours in how far we can influence the disease. There can be no dispute in regard to these signs, such as degree of injection, size of pupil, variance in the curve of tonometric pressure, etc., and it is safe to place a time limit of three days that may be allowed to elapse before proceeding to operation. As before mentioned, the classical iridectomy is the only operation here indicated. But if the anterior chamber is too shallow to allow of its successful execution, the major operation may be preceded by a Deutchmann puncture of the vitreous. Within twelve hours an iridectomy can then be performed.

Chronic inflammatory glaucoma. Although this is essentially the chronic stage of the previously mentioned type of the disease, still the indications for operative interference here demand separate consideration. Practically always are we able to exert some influence by therapeutic measures alone, and our question then resolves itself into, 1. What are the absolute indications for operation? and, 2. How long can we wait with operation?

There are two important factors that will en-

able us to recognize the success or failure of the therapy employed. First and foremost is the curve of intra-ocular pressure, tonometrically registered. The readings, daily by necessity, should be plotted into a curve and the fluctuations thus recorded are a safe indication of the value of the treatment. However, a descending curve must reach at least the upper limits of normal pressure (roughly 25-27 mm. Hg.) before we are justified in putting aside thoughts of operative interference. The variance in the size of the visual fields offers the second means of judging results. But this is to a measure dependant upon visual acuity, which in turn depends upon extraneous influences so that we are unable to draw any absolute conclusions from this source. Empirically speaking, if these two observations show no marked tendency to return to the normal within seven days, operative interference must be considered.

Here, too, iridectomy is the operation of choice. Of recent years, there has been a marked tendency toward the sclerotomy, under which head I class the three major operations of this type, Lagrange, Herbert, and Elliot. The results of this operation are on a par with or even superior to those following an iridectomy, while the intercurrent dangers are less. At first blush, this would seem to be the operation long sought for. However, there is one attendant danger that is but now being recognized, late infection. Up to September, 1913, nineteen cases of late infection had been reported and since then nearly every journal has contained one or more. Meller reported nearly 2 per cent of late infections in 360 cases observed less than two years. What this figure will be in regard to these patients fifteen years hence cannot even be guessed at. In view of this danger that is existent as long as the patient lives, I believe that we are justified in considering sclerotomy as a last resort. Should an iridectomy prove inefficient, then and only then, in this type of glaucoma, may we perform a sclerotomy, exposing the patient to the ever-present danger of intra-ocular infection through the lack of scleral continuity.

Glaucoma simplex or glaucoma compensatum. This type of the disease, either pure or mixed with the preceding type, is the most common

form, least frequently diagnosed, and the one that comes to us latest. The operative indications are not as sharply drawn here as in the other types, nor on the other hand, is immediate operation so urgently indicated.

The tonometric curve of intra-ocular pressure has not the absolute value here that it has in the uncompensated form of glaucoma. An eye may have a pressure of nearly forty mm. Hg. and still be relatively free from danger. Of greater value is the number of millimeters of Hg. that the tension can be reduced by graduated massage, indicating the patency of the outlets of intra-ocular fluids. We must consider any difference in pressure of less than seven millimeters before and after massage as dangerous. The visual fields are of greater importance here than in the previously mentioned types and any continued contraction must be viewed askance. The visual acuity too, must be taken into consideration as well as the ophthalmoscopic appearance of the disc.

With these factors before us, we may give our therapy about a two weeks trial. At the end of this time, if the disease appears to be amenable, the treatment may be reduced in severity for another two weeks and then entirely eliminated for two weeks more. If at the end of any of these periods, the symptoms appear to be uninfluenced by the therapy, we must proceed to operative interference. Cyclo-dialysis is, to my mind, the operation indicated and its results may be divided into three classes.

The first class of cases, comprising under 40 per cent of the whole, yield to this operation, are cured and remain cured.

The second class, about the same in size, apparently yield to the operation, but relapse in from three months to several years. In these cases, a second cyclo-dialysis may be performed with even better results than from the first operation.

The third class does not seem to be influenced by the operation to any great extent and the glaucoma returns in a week or so. Nor will these cases yield to a second cyclo-dialysis, but demand operative interference of other type. Iridectomy here has shown itself to be of little value and we are forced to the last resort, sele-

rotomy, whose results have proven themselves surprisingly good.

DISCUSSION.

Dr. Thomas Faith, Chicago: I just wanted to ask Dr. Gradle to explain a little more fully this plan of massage and also the changes in tension. I did not quite understand.

Dr. Charles D. Thomas, Peoria: We have been hearing a great deal of late from Dr. Fischer of Cincinnati in regard to the subject of acidosis and drowsy and increased tension of the eye in glaucoma. I would like to have Dr. Gradle speak on that.

Dr. C. B. Welton, Peoria: While not exactly pertinent to the subject, I would like to say one thing in regard to the trephine operation of Elliott. I have read considerable of it and have had some experience with that operation, and in one case of the kind I became very much interested in a certain phase of it. The flaps, as Elliott has lately warned us, tear very easily. In doing the Elliott operation, if any pull is made upon the conjunctival flap there is liable to be a tear, with a consequent buttonholing of it, and in doing a trephining operation, which happened to be upon a private case, I unfortunately tore the flap. There was quite a good-sized buttonhole and I was much alarmed because the anterior chamber did not reform for ten days. Another unfortunate thing about this case was that the patient only had one eye, the other having been lost years before in an accident. I had not seen the article of Elliott at that time in which he called particular attention to the friability of the conjunctiva in making the flaps in this operation. The patient was put to bed and I kept him there for two weeks. The flap healed over nicely, without any prolapse. This is just a point to observe in making the Elliott operation.

Dr. E. E. Edmondson, Mount Vernon: While I was eye and ear interne at St. Luke's Hospital we did a number of Elliott operations with the accident of buttonholing the conjunctiva, and the patient would go right on, to an uneventful recovery, progress being as good as without the accident. On one occasion an oculist did a La Grange operation, and purposely he opened the vitreous chamber and allowed a bit of vitreous to protrude, continued to keep this clean, and the patient made an uneventful recovery. So I think the mistake which the Doctor thought that he had made is a procedure which is intentionally performed by some of our best surgeons with excellent results.

Dr. Harry Woodruff, Joliet: There is one part of Dr. Gradle's subject that I think should not go without some further word, and that is the proposition that in acute inflammatory glaucoma we should try the use of eserine for a few days. You suggested that? (Yes, sir.) However, he has qualified his statement in this way, that the patient must be an intelligent patient and one whom you are certain to exercise the proper control over. Of course, that

is a very indefinite statement. The most intelligent patient may be the worst patient, and your most ignorant patient may be your best so far as that is concerned. You have no means of knowing just what your patient is going to do or what he thinks, and we possess in the operation of iridectomy an almost certain cure for acute inflammatory glaucoma. I question whether I should qualify that by the word "almost." Glaucoma is a disease that causes absolute blindness, and if there is any method of treatment in which there is a universal opinion regarding its results and has been for many, many years, I think we had better stick to that operation.

About ten years ago I was called to see a patient suffering from acute inflammatory glaucoma. She had been in that situation for a few days, the family doctor had been called, and finally I was consulted. I suggested an immediate operation. They consented. She was removed to the hospital, and under a general anesthetic an iridectomy was performed, and while she was in the hospital recovering from this operation she had an attack in the other eye of exactly the same conditions as the first. An immediate operation advised, to which she consented, and under a general anesthetic again she had an iridectomy performed on the second eye. That woman today has perfect vision with her glasses and absolutely a normal eye, with the exception of the coloboma in each eye. Now, this case is only an example of what can be done in any case—I believe I am safe in saying in any case—of acute inflammatory glaucoma, and I do not believe that it is the right thing to do to depend on eserine, only just for the time being, of course, to reduce the tension as far as you can get it before you are able to do the operation. Then, too, I believe you should always do the operation under a general anesthetic, because you can get very little local anesthesia from cocaine.

Dr. Gradle also spoke about the difficulties of doing the iridectomy with a shallow anterior chamber. Dr. Clark told me of a method that he saw in use, I think, in Buda Pest, in cataract operations, where the anterior chamber was very shallow and where it was difficult to insert the knife to make the incision. I see no reason why that method could not be adopted even in glaucoma operation, as long as you are going to immediately open that anterior chamber. The method was the injection of normal salt solution into the anterior chamber in sufficient quantity to force the iris and lens backward so that the incision could be made.

Now, I have one thing more to say in connection with Dr. Gradle's paper, and that is that this is still an unsettled question in regard to the operation of sclerotomy for chronic glaucoma, and we are also still uncertain regarding the etiology of glaucoma. That is, we are not prepared to make a definite statement. We have so many theories and some true in part, that we are not prepared exactly to state that any one thing out of the number is a cause for all cases of glaucoma, but I believe that it is reasonable

to presume that the good effects of an iridectomy are not due so much to the opening of the fontana spaces, because, as is well known, we often secure good results from a very poor iridectomy, and get no result from a very good iridectomy. So it is not so much the size of the iridectomy, or whether the iridectomy extends clear to the root of the iris or not, but rather that the removal of the portion of the iris opens the vessels of the iris which remains permanently open and therefore able, in some degree at any rate, to compensate for this increased tension; that is, to carry off the drainage, and thereby assist these spaces and the canal of Schlemm in doing the duty they have failed fully to perform. If we accept that as being true, then why not if we fail to secure that reduction in tension after doing one iridectomy, why not do a second iridectomy opposite to the first, thereby giving us still more drainage through the vessels of the iris below, all of which, of course, terminate in the main vessels and are carried off to the conjunctival and scleral vessels? Now, I am not entirely theorizing on this, because I have had such an experience a number of years ago and have rather been weaned away from the idea by reading of what others have to say, but I have decided that I would go back and try this method when a suitable case presents itself. This case of which I speak was that of an old man who kept a small grocery store. He had lost one eye from absolute glaucoma, the eye had been enucleated; and in his only remaining eye he had a glaucoma, but still had vision which enabled him to get about, and attend to his business. An iridectomy was done above which failed to relieve his tension. Therefore, a second iridectomy was advised and performed below, and that man for the rest of his life, a number of years, was enabled to get about and attend to his business, deliver his groceries, drive his horse and make a living. In other words, an improvement followed that second iridectomy. Therefore, it seems that there is some evidence, at least, that there may be something in the proposition that the opening up of those vessels in the iris does assist in the drainage of the eye.

Before Dr. Gradle closes the discussion I would like to thank the gentlemen who have been with us during this session, and I would like to thank the local men here who have made it possible to have the successful entertainment and the clinic, and I only hope that my successor, Dr. Welton, whom I also wish to thank for his assistance as secretary, I hope that he will have the same pleasure that I have had in presiding over this session. I thank you very much.

Dr. H. S. Gradle, Chicago, closing: In deciding on the title of this paper I purposely omitted all points except what were indicated by the title: indications for operation. I thought that would be enough for one paper. Consequently I said nothing at all about the theory of the cause of glaucoma. I spoke merely of the indications for operation.

I cannot agree with Dr. Woodruff in regard to performing an iridectomy in an acute inflammatory

glaucoma irrespective of the circumstances. To illustrate that, let me briefly cite one case under my observation. A woman, seventy-one years old, came to me with an acute inflammatory glaucoma in one eye of a few weeks' duration, in the other eye of two days' duration. After examining her and measuring the tension carefully, I put a drop of eserine in each eye, had her wait about ten minutes and then put in another drop. To my great surprise the eye that had had the tension for only a few days was pale, the pupil was contracted, there was absolutely no edema of the cornea. So I immediately anesthetized the eye, measured it, and found that the tension had decreased to normal. It was not necessary to proceed to other measures. In the other eye there was response to the miotics, and an iridectomy was necessary. Now that woman is much better off with the eye that has not been operated on than with the eye that was operated on. If she should get another attack of glaucoma she knows enough by this time to come within twenty-four hours. Just as good results can be obtained from an iridectomy performed during the early stages of a second or even a third attack of glaucoma as during the first attack, provided the tension remains the same after the first attack as before the glaucoma had appeared. An apple which falls from the tree, hits the ground and is bruised is not as good as an apple that is hanging on the tree; neither is an eye that has had an iridectomy as good as an eye on which the operation has not been performed.

My idea in writing this paper was to try to warn a little bit against the indiscriminate use of trephining. It is a simple operation, and our results are beautiful. There is no question about that; *but* we forget *late infection*. We have not had the operation long enough to know how many cases of late infection are going to occur. If you will just stop to think from a surgical standpoint; what man would open the abdomen and leave a peritoneal fistula, covered merely with a thin layer of mucous membrane? We have the same condition in the eye; a fistulous opening into the interior of the eye, covered with a thin layer of mucous membrane. We know that in every single case of severe infection of the conjunctiva, with the one exception of Morax-Axenfeld infection, that the infecting organisms penetrate the epithelial layer, go into the subepithelial layer, and are found in the episcleral tissue. This is especially true of the pneumococcus and it is this organism that will cause the panophthalmitis that so frequently causes the loss of the eye by late infection after trephining. These points should make us a little more careful.

Dr. Faith asked in regard to the use of massage. It was first shown three years ago by Knapp of Basle that massage would reduce the tension of the eye, whether that tension were normal or elevated. The tension of the normal eye can be reduced from ten millimeters by massage; that is, by deep pressure on the eyeballs. This reduction is temporary and disappears in fifteen to twenty-five minutes. Fol-

lowing massage, there is a slight increase in tension. In the glaucomatous eye the tension can also be reduced by deep massage, but this reduction lasts even a shorter length of time than in the normal eye. However, it does indicate whether that eye possesses a patent outlet for intraocular fluids. We can say, roughly speaking, that by far the majority of intraocular fluids, over ninety-five per cent flow out through the canal of Schlemm. If we can reduce our tension by massage, seven millimeters of mercury or more, it indicates that the intraocular fluids can reach this patent outlet, that we can have some hope for therapeutic influences, and we will not necessarily have to resort to operative measures. On the other hand, if our intraocular pressure can be reduced only a few millimeters of mercury, it shows that we have no outlet, or that the intraocular fluids cannot reach the outlet, and, consequently, no matter what we do along the line of treatment, we must open up a new outlet for the intraocular fluids.

There are three types of operation that open up new outlets for intraocular fluids. The first one, iridectomy, opens up the normal intraocular outlet. The second type opens up a *new intraocular* outlet. The operation, cyclo-dialysis, as you know, frees the ciliary body from its attachment and allows the passage of the aqueous between the ciliary body and the sclera into the supra-chorioid spaces from whence it is absorbed. That is a new intraocular outlet. Our third type, the sclerotomy opens up an extraocular outlet, allowing the intraocular fluids to pass outside the sclera. Now any operation which to succeed must have a fistulous tract is dangerous. Nevertheless, we go ahead and perform these sclerotomies without any thought of the future, and I merely wish to give a warning to have a thought for the future before unnecessarily interrupting the permanent continuity of the sclera.

INHERITANCE WITH REFERENCE TO THE EYE AND EAR.

J. C. FISHER, M. D.,
DECATUR, ILL.

In every organism there are gametes, or determiners, which give rise to certain characteristics. They may be augmentors or inhibitors; if they are inhibitory, the lack of a dominant characteristic results. A person having determiners from both the sperm and the egg for a certain characteristic, is called a duplex. An individual having a determiner from the sperm, and none from the egg, or vice versa, is called a simplex. Children of two duplex parents will manifest whatever dominant qualities the parents may have; for instance, every one of the children of duplex brown-eyed parents will be brown-eyed. If one of the

parents is a simplex, i. e., if he has not received the characteristic eye-color from forefathers on both sides of the house, although he may himself be brown-eyed, yet one in three of the children may be blue-eyed. This rule is known as the law of Mendel. The Mendelian law holds in the matter of the transmitting of physical defects and diseases, so that our knowledge of inheritance is now far more definite than in the past, and we can predict almost with certainty what the result will be if two defective persons should marry and rear children.

Apart from albinism, the chief optical defects whose inheritance has been studied are coloboma, reduction in size of the eye-ball to complete absence, optic atrophy, cataract, dislocation of the lens, glaucoma, megalophthalmus, nystagmus, retinitis pigmentosa, hemeralopia, color-blindness, astigmatism and myopia, besides paralysis, or imperfect development of the muscles of the eye and lids, which includes ptosis, epicanthus, blepharaphimosis and strabismus. Every one of these peculiarities show clear evidence of heredity, and I wish to call attention to the eugenic teaching in their regard. Coloboma, for example, is conceded to be an hereditary defect. The defect has a positive character and is due to an inhibitor of development. The affected male is either simplex or duplex in this inhibitor; the affected female is typically duplex, rarely simplex. The eugenic conclusion is that no female possessing the coloboma defect should have children, since *all* of her sons will be affected. For males having the defect the danger in marriage is also great, for either all or half of the sons of such a father, even if he be married to a woman of a normal strain, will be defective; but the daughters will not be defective in this way unless the wife belongs to an affected strain. Two persons themselves unaffected may marry with impunity, except for the fact that if the woman belongs to the abnormal strain, it may be that half of her sons will be affected.

Optic atrophy is another transmissible disease. The course of the disease is the same in the same family, so that the prognosis depends in the main on the degree of malignancy which the malady exhibits in that particular family. The manner of inheritance in this case resembles that of coloboma, except that females, even if duplex,

rarely exhibit the trait. The rule is: A normal son of an abnormal male may marry,—quite outside the family,—with impunity, but a normal daughter may transmit the defect to her sons.

Cataract, the opacity of the lens, may result from abnormal conditions originating in other parts of the eye or body, or seemingly arising in the lens itself. In the latter case, the inheritance is marked. Probably more pedigrees of cataract have been published than of any other eye defect. Loeb refers to 304 families of which accounts have been kept. Of 1,012 children in these families, 589, or 58 per cent., were affected. The usual manner of inheritance is of a positive character. Either half or all of the children of affected individuals are affected, while two unaffected persons have no defective offspring. The rule is that if either parent has cataract, at least half of the children will have it also. If an individual belongs to a strain affected by cataract, but is himself free from it, advice must depend on the nature of the cataract. If cataract appears early in the family strain, at an earlier age than that of the person who contemplates marriage, then such marriage may be advised.

In the study of the inheritance of glaucoma, we meet with the difficult fact that its outset, like that of cataract, is late in life. The age at its outset is variable, however, in some families high, in others low. In the children the onset is frequently earlier than in the parents. Thus in one family, the father shows the disease at seventy, his daughter at forty-five. In another case, the father is attacked at forty-nine and his sons at eighteen and sixteen. A mother is affected in one eye at sixty and in the other at eighty-one, while her three children are affected at sixty. The eugenic practice is rendered more difficult by the fact that glaucoma usually first appears toward the end of the reproductive period. But certainly affected persons should avoid having children, while persons not themselves affected may marry if the disease first appeared in their parents at fifty, or later.

In regard to the ear, I shall say only a word on otosclerosis, the inheritance of which is a familiar fact. Most persons know families many of whose members become "hard of hearing" as they grow older. The trouble is often attributed to climatic conditions, but the severe climate only

brings out the latent defect. The eugenic indications then are that two persons with a tendency to otosclerosis should refrain from marrying since probably all of their children will be "hard of hearing," but an affected person and an unaffected person of an untainted strain, may marry with impunity and probably all of their children will have strong hearing.

In view of the misery, suffering and inefficiency resulting from the marriage of defectives, should not the medical profession be alive to its responsibility? For it will be largely through the efforts of the profession that reform will come. Theirs is the task of influencing legislation, of educating the public and of giving advice in private practice. Not everyone will heed the advice, but many thoughtful persons will. The physicians have always stood in the front rank of those who try to promote the best interests of humanity, instructing the people in hygiene and sanitation, and laboring unselfishly for the prevention of disease. They have been interested in better conditions, better environment, but have they been sufficiently interested in the breeding of a better race?

DISCUSSION.

Dr. E. E. Edmondson, Mount Vernon: I was very much interested in Dr. Fisher's paper. I am not one of those who oppose the idea of eugenics. I think we should carry that idea as much as we can into human relationships. I moved down last winter from Chicago into the land of trachoma in order to study that condition. I am treating whole families down there for that disease, and heredity certainly has a bearing on the infection. In families, when the parents have the disease, the children have it, and since there was very little in treatment done for it forty years ago, there is very little done now. It is a point on an infection and heredity that the president of the Chicago Ophthalmologic Society states is responsible for 10 per cent. of the blindness of this state. We find the old people with cicatrices, ulcers, pannus, perforated cornea, etc., and the children in the acute inflammatory stage. I would like to know in the doctor's reply if eugenics has taken up that question.

Dr. A. L. Adams, Jacksonville: Just a few remarks along the line of congenital cataract. I have been interested in studying congenital cataract, and in the Illinois School for the Blind, with which I have been connected a good many years, I have had considerable opportunity to observe it. I have come to the conclusion that the diagnosis of congenital cataract is oftentimes made without sufficient basis in fact. I know that the children come there with a cataract, and make the statement that they were born blind, but

by questioning and by investigating I find that it is doubtful whether that individual was absolutely born blind or not. In fact, it is a difficult matter to tell in very early childhood whether the child is absolutely blind or not. Extensive statistics abroad show that 3 per cent. of the congenitally blind are blind from congenital cataract. I found among the children of the School for the Blind that there were 7 per cent. who were tabulated as being blind from congenital cataract, and I came to the conclusion that this cataract was in many instances a secondary affair, that it was a matter of degeneration, and that it was only a part of the process, that the real ailment was degeneration. They may have had a choroiditis, or they may have had other intraocular inflammation, and the cataract was simply the end of the process. A large number of the children that come to the school have never been seen by men doing special work and consequently the diagnosis is an offhand, snapshot diagnosis without sufficient evidence to support it. The subject is extremely interesting, and I am glad to have heard Dr. Fisher's paper.

Dr. J. C. Fisher, Decatur, closing: I do not know that I have anything to add except in regard to Dr. Adams' mention of the causes of cataract. The same thing is true of that disease as of otosclerosis. There are seeming causes for both, but the real source in each case is an inherited defect. Many say the cause of otosclerosis is the severe climate. Others say it is a catarrhal condition. This, that and the other is given as the cause. But other people living in the same climate are not affected, so that we must conclude that in affected persons there is a predisposing cause.

TONSIL REMOVAL BY KNIFE DISSECTION.

O. T. FREER, M. D.

CHICAGO, ILL.

In recent times complete removal of the tonsil, or tonsillectomy has displaced its partial removal, or tonsillotomy. So many attempt tonsillectomy, including those unfamiliar with throat surgery, that procedures have become popular which try to supplant excision of the tonsil, which needs surgical skill, by its evulsion, which requires mere manipulation. I refer to the so-called finger "enucleation"; to tearing the tonsil free with dull separators and the wire snare; and to the pinching of the tonsil from its bed with the guillotine of Sluder.

These blunt procedures originated in the dread of the knife and of bleeding from a keen cut felt by those unpracticed in surgery. This dread, however, has led to a disregard of the injury inflicted by torn wounds and of a danger worse

than hemorrhage, the danger of sepsis, which threatens torn and bruised tissues and especially in the region of the tonsil, whose surroundings are so often the seat of chronic infection liable to be widely spread by forcible manipulation and to be aroused by it into phlegmonous and gangrenous inflammation and even general sepsis, suppurative phlebitis and pyemia. The frequency of peritonsillar abscess and of chronic and acute adenitis of the cervical glands of tonsillar origin shows how predisposed to sepsis is the region of the tonsil. I know of four deaths due to septic infection after blunt tonsil surgery and I have often seen it create violent inflammatory reaction, sore throat and fever. Dr. L. W. Dean (*Laryngoscope*, 1911, page 739), in an article on sepsis after tonsil operations, mentions three deaths from sepsis after tonsillectomy. In a non-fatal case septic phlebitis followed the internal jugular vein to the cerebral sinuses with resulting panophthalmitis in one eye and optic neuritis in the other. Dean also mentions a case reported by Seggal² (*Klinisches Monatsblatt für Augenheilkunde*, 1907, p. 129) and speaks of a number of cases of recovery from sepsis after tonsillectomy. Dean states that he has found sepsis a more formidable sequela of tonsil operations than hemorrhage.

In November, 1913, Dr. Le Master of Bushnell, Ill., told me of two patients with sepsis after tonsillectomy whom he saw in consultation. One of the operations was a Sluder. Eight weeks of septic fever followed it with temperatures from 101 to 104.5. A lung abscess developed which still exists. For weeks the patient could hardly swallow. The second patient had the tonsils removed with a snare after blunt dissection by spreading the blades of the Mayo scissors. Five days later the throat became gangrenous. The patient died of sepsis in fourteen days.

A boy, aged twelve years, seen by me in consultation, had gangrene of the pharynx, ulcerative endocarditis and pyemia following a snare tonsillectomy done some days previously. The patient died.

After partial removal of her tonsils with the snare a woman had ten weeks of sepsis which ended in a lung abscess for whose treatment she placed herself in the care of Dr. Joseph B. Bacon of Macomb, Ill. Dr. Bacon drained the abscess by rib resection and the patient recovered.

The cases cited sufficiently show how easy it is to excite sepsis in the tonsillar region. In my experience septic complications after tonsillectomy accompany the contusion, laceration and consequent tissue devitalization of blunt tonsil surgery. Neither septic symptom nor even inflammatory reaction has followed my knife tonsillectomies.

It may be contended that the wound made by the snare and especially by the Sluder instrument has the appearance of an incised wound in most cases. But so does the average scalp wound following a fall upon the head look as if incised although it is a contused and lacerated wound. Such wounds heal slowly and with an excess of scar tissue. This has been the experience of Dr. L. E. Gordon of Chicago in respect to his Sluder operations. He therefore prefers dissection.

The injuries to the palate from evulsive tonsillectomy occur chiefly where the tonsil is firmly joined to its surroundings. Thus a blunt procedure which gives a series of good results where the tonsil is normally free in its bed will lead to unsuccessful attempts and palate mutilation where it is adherent. It is this condition and unusual anatomical relations which makes blunt tonsil surgery insufficiently adaptable.

In adherent tonsils finger enucleation is liable to tear through the anterior and posterior pillars and their attempted separation from the tonsil with dull or probe-pointed instruments is apt to be imperfect, so that the wire loop which finishes the operation includes portions of the pillars in its cut. Such operations leave torn wounds which deform the pillars and create firm, retracting scars.

In the Sluder method there is no preliminary separation of the tonsil from its bed and it is expected to be free enough, including its upward extension into the recessus palatinus, to enter the ring of the instrument without any part of the palate. That such freedom of the tonsil may not be relied upon is shown by the admission of Sluder that fibers of the palatoglossus muscle may be severed by his guillotine. Thus not only the plica triangularis, which the Sluder instrument always sacrifices, but a portion of the anterior pillar itself may be cut away, leaving a gap which must be healed by a distorting cicatrix. Dr. Le Master has seen four patients where such cicatrices following the Sluder procedure ren-

dered the pillars immovable in scar tissue. A clever Sluder operator showed me with pride a pair of tonsils upon whose anterior surface lay a thick piece of palatoglossus muscle.

The tonsil scissors in inexperienced hands may inflict great injury and I have seen palates which had been half cut away by them and in one case the mangled palate had adhered to the posterior pharyngeal wall shutting off communication between the nose and mouth. (Fig. 1.) This patient was successfully operated upon by the method devised by Dr. John O. Roe of Rochester, N. Y., for freeing the adherent palate. Dr. Roe has operated upon several cases of adherent palate after tonsillectomy.

In addition to firm union of the tonsil with its surroundings, smallness of the throat in little

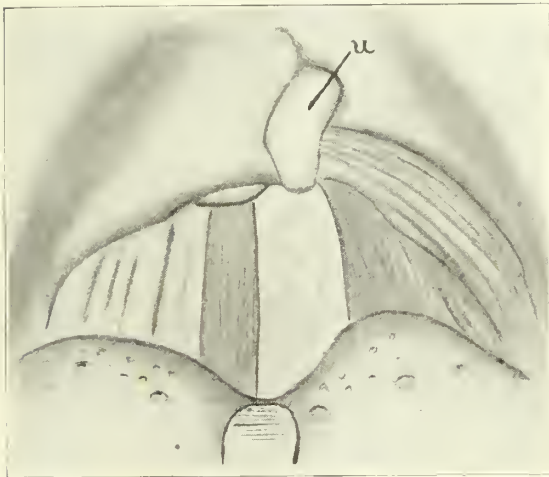


Fig. 1. Shutting off of the nasopharynx from the oropharynx by cicatricial adhesion of the soft palate to the pharyngeal wall following a scissors tonsillectomy and an adenoid curettement that stripped the posterior wall of the pharynx; u, uvula imbedded in scar tissue.

children and a large thick tongue make tonsillectomy by any method much more difficult.

Another objection to the mechanical and blunt methods of tonsillectomy is incomplete removal of the tonsil, the velar lobe especially being often left in the palate to be the cause of future attacks of tonsillitis and peritonsillitis.

It is to present a method that avoids the injuries mentioned and to advocate a return to surgical art in tonsillectomy that this article is written. I have brought out the principles of the method advocated in a previous article in the *Journal A. M. A.*, in 1909, but the present

description presents the better and more exact technique gained by a longer experience.

Anatomy.—A full description of the anatomy of the subject is not attempted in this article, which merely emphasizes important points.

L. Grünwald has just published the results of a research in the Anatomical Institute of the University of Munich upon the anatomy of the tonsil, a research so important that it has compelled the rewriting of a portion of this paper. The conflict of Grünwald's findings with existing preconceptions of the anatomy of the tonsillar region and his innovations in the nomenclature have made a clear and simple presentation of the subject difficult.

As Grünwald shows, the tonsil has in the fetus a double origin as an upper and a lower tonsil. Evidence of this division diminishes as life advances, but is often seen in childhood and may be present in the adult, the tonsil being divided horizontally by a fold, the plica transversa, or by a sulcus into an upper and a lower tonsil. The double tonsil of early life later becomes a single one either by atrophy of the upper or of the lower tonsil or by disappearance of the plica transversa and by blending of the two tonsils. The space occupied by the lower tonsil Grünwald calls the sinus tonsillaris, that filled by the upper one the fossa tonsillaris. The fossa tonsillaris extends upward into the soft palate external to the junction above in the form of a gothic arch of the palatoglossus and palatopharyngeus muscles. The apex of this arch forms an acute angle which joins the side of the uvula and is best seen with aid of the rhinoscopic mirror. (Fig. 2.) It will then be seen that the two sides of this apex form anterior and posterior walls of a deep triangular recess extending far upward into the palate and whose outer wall is formed by the upper tonsil which reaches high up into the palate to underlie the Eustachian tube. This recess is called the recessus palatinus. In cases where the upper tonsil (velar lobe) has atrophied the eye looks up into a recessus palatinus without tonsillar tissue.

Follicles of the upper tonsil discharge into the recessus and may often be seen in the mirror to contain yellow plugs. It is in the recessus and around the upper tonsil that peritonsillar abscesses usually form.

The concave roof of the recessus palatinus is

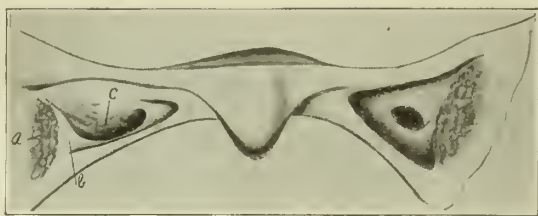


Fig. 2. Image of the recessus palatinus in the rhinoscopic mirror. a, lower tonsil; b, plica transversa; c, upper tonsil lying in the recessus. After Grünwald.

formed by a layer of mucous membrane called the plica supratonsillar, which is loosely attached above but united firmly outwardly to the upper pole of the superior tonsil. The plica supratonsillar ends below in a free edge which partly encircles the inner surface of the superior tonsil. Normally hidden from direct view, the plica supratonsillar becomes visible when the recessus palatinus is everted by pulling down the upper tonsil and its free edge may then (Fig. 9.1) be seen to hold in the upper pole of the superior tonsil (velar lobe so-called) as the edge of the perineum holds the advancing occiput.

A recess called the fossa supratonsillar, described as lying above the tonsil or recently as being merely a large follicle in the upper pole of the tonsil itself, is often spoken of. As Grünwald shows, there is no such recess, its description being merely a misconception of the recessus palatinus.

A structure which Grünwald also considers misnamed is the layer or plane of mucous membrane extending from the palatoglossus muscle inward to the tonsil, whose front and inferior surface it covers either as a fold or, when stretched out by a large tonsil, as a flat layer. This entire area of mucous membrane was named the plica triangularis by His and this name has been generally adopted, but is ill applied because it calls a mucous membrane plane a fold. Grünwald therefore calls the plica triangularis the planum triangulare, which he describes as having an attached part, joined to the palatoglossus muscle, the pars tensa and a movable part overlying the front and lower part of the tonsil, the pars libera, or plica semilunaris. Nevertheless, on account of general custom it is necessary for the present to use the term plica triangularis as the equivalent of Grünwald's more correct designations.

The space occupied by the tonsil is bounded posteriorly by the palatopharyngeus muscle, forming the posterior pillar of the fauces or arcus palatopharyngeus and anteriorly by the palatoglossus muscle which forms the anterior pillar or arcus palatoglossus. Externally it is limited by the superior constrictor of the pharynx. The entire space is commonly called the sinus tonsillar or fossa tonsillar, but Grünwald's division of the space into a lower sinus tonsillar and upper fossa tonsillar seems better considering the demonstrated double origin of the tonsil.

However, as the upper and lower tonsils are commonly found blended it is simpler to speak of the tonsil as one, while remembering its double origin and using the terms superior and inferior tonsil when needed. The tonsil possesses an internal or follicular mucous membrane surface and an external fibrous or capsular one which lies in the intermuscular space described and in normal tonsils projects a little beyond it into the fauces at the front and lower pole of the tonsil, being here covered by the layer of mucous membrane commonly called the plica triangularis, but as stated, named the planum tirangulare and plica semilunaris by Grünwald. In small tonsils

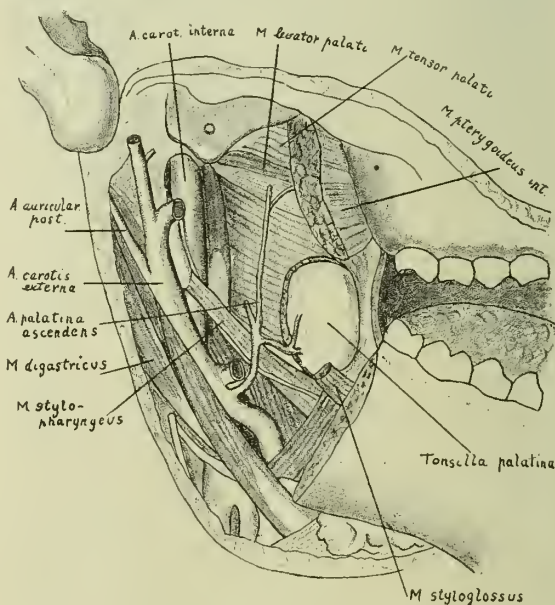


Fig. 3. View of the pharyngo-maxillary fossa. The external surface of the tonsil seen through a window made in the superior constrictor of the pharynx. The remoteness of the tonsil from the great vessels is shown. The stylopharyngeus and styloglossus muscles are seen to divide the pharyngomaxillary fossa into a posterior space containing the great vessels and an anterior space opposite the tonsil without large vessels.

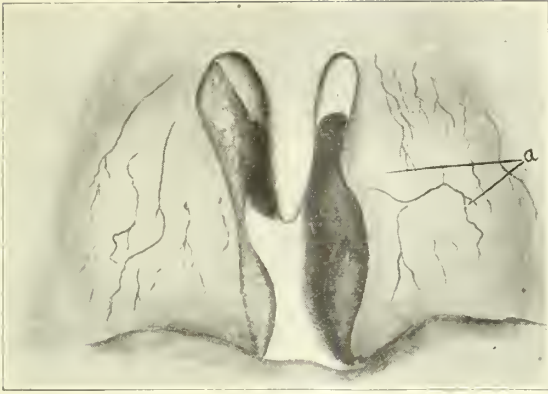


Fig. 4. Submerged tonsils. Demonstration of the unfolding and stretching of the plica triangularis, a, a, over the front of the tonsil by the tonsillar enlargement.

the plica triangularis is relaxed and folded along its free inner edge, forming a recess between it and the front face of the tonsil. In large tonsils it is stretched out to form a single plane of mucous membrane without a recess. I have not, as has Fetterolf (*Amer. Jour. Med. Sci.*, 1912, p. 37) found the connective tissue of the plica triangularis (usual designation) to be continuous with the tonsillar capsule, but have found the plica to be merely loosely attached mucous membrane distinct from the capsule and easily uplifted by the knife. In this connection Grünwald states: "Imperfect comprehension in many has led to the idea that capsule and plica triangularis are identical. The planum triangulare and plica semilunaris, Grünwald (usual designation plica triangularis) are mucous membrane and superficial structures, while the capsule is a deep structure and has no relation to the mucosa."

A number of follicles penetrate the tonsil nearly to its capsule. They are lined with squamous epithelium which has a tendency to seal and form cholesteatomatous collections in tonsils undergoing involution.

Externally the tonsil is attached to the fascia of the superior constrictor by areolar tissue which is normally loose and elastic, permitting the tonsil to be drawn inward, but which may become cicatricially resistant as the result of peritonsillar abscesses or inflammation. Fig. 3.

Pathologic conditions.—The attachment to the tonsil of the inner portion of the plica triangularis (plica semilunaris of Grünwald) is in most cases loose; to the posterior pillar however the tonsil is so firmly joined that the line of

demarcation is often hard to see. In enlargement by hypertrophy this posterior firm attachment serves as a hinge upon which the tonsil rotates backward, pulling upon and unfolding the plica triangularis (planum triangulare and plica semilunaris) which become stretched out over the front of the tonsil as described. If then, the plica semilunaris be thin and yielding the tonsil may distend it enough to escape beyond it and project into the throat as the typical protruding hypertrophied tonsil whose upper palatine portion alone has a muscular bed while its lower portion is almost pedunculated and superficial. The plica forms a narrow collar at the base of these typical tonsillotome tonsils. In case, however, the plica semilunaris and planum triangulare are strong and unyielding, the tonsil can not escape beyond them, but, after being stretched out they overlie the anterior surface of the tonsil, (Fig. 4), forcing it outward between the muscles and thus deepening its bed, the bulk of the tonsil being seen to bulge under the planum triangulare and the palatoglossus muscle, which are sure to be cut, with danger of serious bleeding, if the tonsillotome or the Sluder guillotine be used.

The atrophic tonsil.—The normal atrophy of tonsillar involution after early childhood may predispose to attacks of septic inflammation of the tonsil and especially of its surroundings. The shrinkage of the lymphoid tissue of the tonsil dilates the follicles which fill with foul epithelial debris. The pressure of such collections may create granulating erosions of the follicular wall with consequent infection of its surroundings.

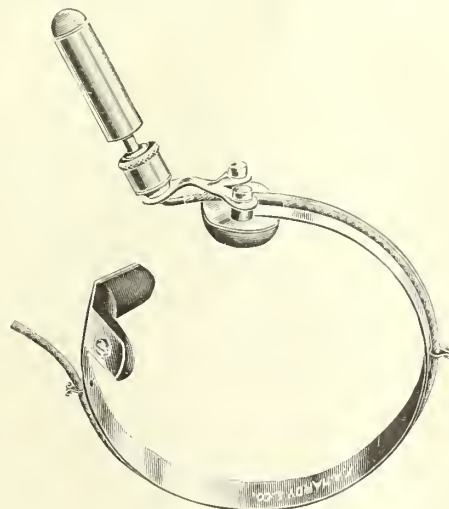


Fig. 5. Jansen's headlamp.

The fibrous, shrunken parenchyma of the tonsil usually is not capable of inflammatory reaction itself but transmits the infection into the peritonsillar tissues beyond the capsule of the tonsil. For this reason peritonsillitis, usually suppurative, is characteristic of the atrophic tonsil and not tonsillitis. Nor are hypertrophy or chronic infection of the lymphatic glands commonly associated with the atrophic tonsil, which by reason of its fibrous state is not in open communication with the lymphatics. The upper tonsil, and

sillectomy justifiable. Unjustifiable however is the common practice of removing tonsils of normal or atrophic appearance which have never been inflamed merely because the patient has rheumatic symptoms.

Not rarely in children and sometimes in adults the anterior and posterior pillars are the seat of lymphoid hypertrophy, so like true tonsillar substance that it becomes hard to differentiate the tonsil from the thickened, nodular pillars. This hypertrophy may also appear after a com-

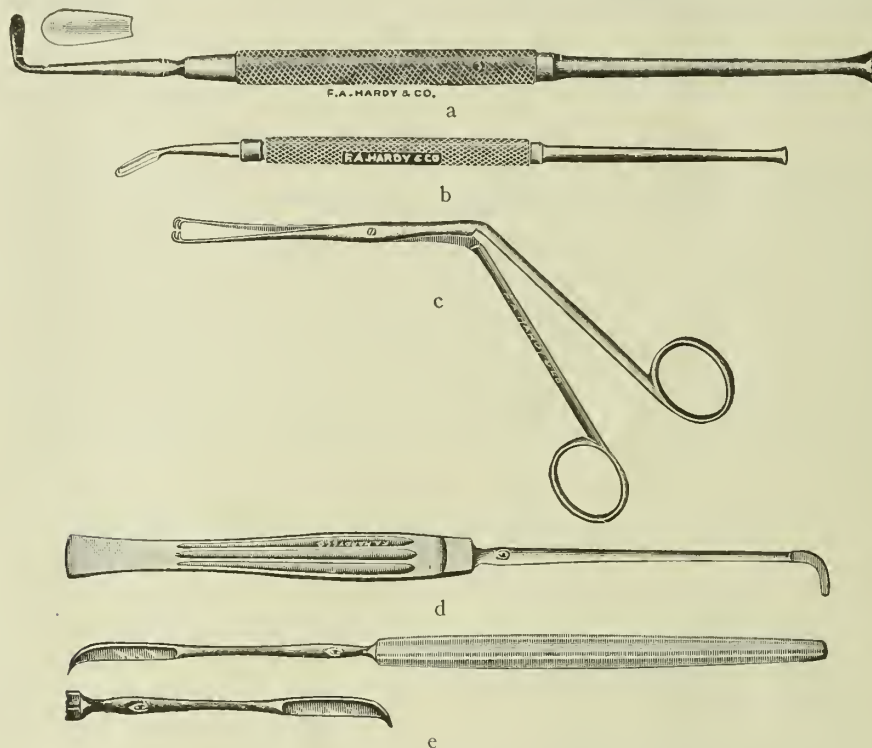


Fig. 6. a, b, pillar knives; c, Tydings' forceps; d, sickle knife; e, Freer tonsil knives, right and left, with blades curved on the flat.

especially its palatine portion, is the one most often the cause of suppurative peritonsillitis. because of its retractive recession into the palate no other method than dissection can remove this type of tonsil without injury to the palate.

The septic tonsil is bound to the tonsillar fossa, the anterior pillar and the plica supratonsillaris by peritonsillar adhesions. For this reason and

In the interval between attacks of quinsy the eye can seldom distinguish the septic atrophic tonsil from the harmless kind. Palpation, however, will often find the bed of the tonsil tender on pressure and the history of repeated attacks of tonsillitis or peritonsillar abscess makes ton-

plete excision of the tonsil and be accompanied by acute inflammatory attacks with fever resembling tonsillitis.

THE OPERATION.

Anesthesia.—For most children and for timid persons, general anesthesia is employed, a continuous supply of ether vapor for inhalation through a tube being preferred. Nitrous oxide gas is not used as a preliminary to the ether, as it is inclined to lead to cessation of breathing during the operation.

For local anesthesia cocaine is used as the most reliable of the local anesthetics. Pure cocaine in the form of a mud of flake crystals is

first applied to the pharynx, the base of the tongue and the tonsillar region by means of a moist swab. A three per cent cocaine solution is then injected by the Schleich infiltration method into the mucous membrane surrounding the face of the tonsil. Finally a deep injection of ten drops is made external to the base of the tonsil through the palatoglossus muscle, care being taken to avoid having the needle enter the tonsil itself, as then the fluid escapes through the follicles. The loss of feeling is less than that obtained in nasal operations, but is sufficient to make tonsillectomy possible in many children from 6 to 10 years old.

Position of the patient.—Where ether is employed the patient is placed in the position advised by E. F. Ingals, that is, lying upon his side with the arm underdeath drawn out behind his back, so that he rests partly on his chest at the very edge of the table, his head lying upon the cheek and being held back strongly by an attendant. In this position blood runs out of the mouth and does not enter the air passages. The tonsil which comes uppermost in this position is the one excised, so that the blood will flow downward from it out of the way of vision of the operative field. When one tonsil has been removed the patient is lifted over to the other side of the table, face down and the head is so turned that it lies upon the cheek corresponding to the excised tonsil. This brings the other one uppermost for operation.

The table employed should be raised upon a small platform or other support until its top is from 42 to 48 inches above the floor, so that the operator need not crouch, but may sit or kneel at ease during the operation. The average table is too low for the work.

For the operation under local anesthesia the patient sits before the surgeon upon an ordinary chair with raised seat.

Light employed.—I use the Jansen electric head lamp (Fig. 5), which has a condensing lens in a cylinder so small that it may be placed between the eyes, therefore nearly in the visual axis, so that disturbing shadows from the upper incisor teeth and hard palate are avoided.

Instruments.—Where the patient is narcotized the mouth is held open with a gag, the one preferred being that of Allingham. To swab blood

from the mouth a number of eight-inch forceps is needed for gauze sponges.

The tongue depressor used has a narrow blade which depresses the half of the tongue on the side of the tonsil to be removed while it permits the other half to escape. A broad tongue depressor which forces the whole tongue downward against the larynx interferes with breathing by depressing the epiglottis and does not expose the

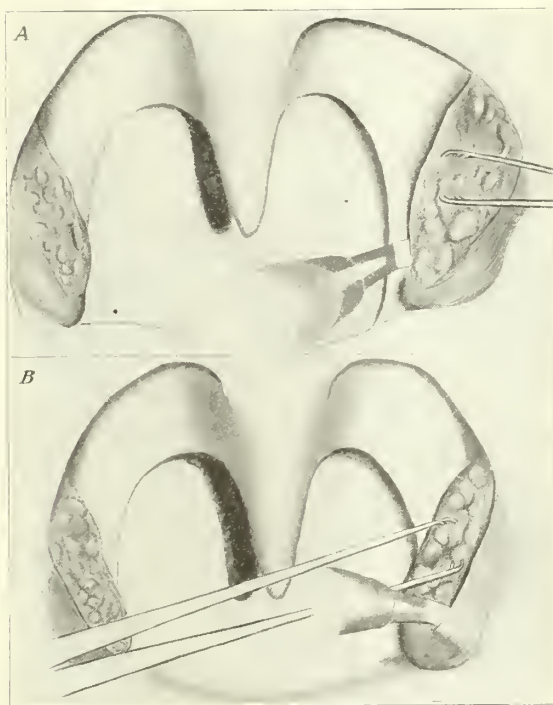


Fig. 7A. The tonsil is seized near the edge of the posterior pillar and drawn forward, while its posterior attachment is severed by the pillar knife.

Fig. 7B. Dissection of the plica triangularis from the front of the tonsil with the pillar knife.

operative field so well as the narrow depressor does.

For freeing the tonsil from the anterior and posterior pillars two thin-bladed, very sharp, pointless pillar knives are used (Fig. 6a), one blade being bent at a right angle on the flat and the other at an angle of 45 degrees (Fig. 6b).

To dissect the velar lobe from its bed the sickle knife (Fig. 6e), and the pillar knife with its blade at an angle of 45 degrees are used. To seize and hold the tonsil there are two pairs of Tydings' forceps (Fig. 6d), and a Tydings' forceps which I had made heavier throughout for large tonsils and friable ones where the usual forceps tear out.

A fine double tenaculum is needed to pull the plica triangularis forward in order to bring atrophic tonsils to view and to hold the wound open after the operation in order to see whether any part of the velar lobe has been left in the palate.

Assistance.—The operation under general anesthesia requires four assistants: The anesthetist; an assistant to hold the tongue depressor, hand instruments and swab blood; a nurse to hold the patient in position upon the table and

while pulling with the first before the tonsil can be drawn far enough forward to disclose its posterior boundary. The line of union of tonsil and posterior pillar is then followed with the one of the two pillar knives found suitable and the tonsil is dissected away from behind as far as possible. If its posterior attachment be not completely released the free edge of the posterior pillar is liable to be cut into when the tonsil is released by the final cut.

The plica triangularis (plica semilunaris of Grünwald) is next separated from the front of the tonsil with the pillar knife. This is usually easy to do except in the case of inflammatory adhesions. The action of the blade is distinctly seen underneath the mucous membrane (Fig. 7B), and as it is pointless it accurately follows the capsule. I have not found that dissecting under the plica misdirects the knife, leading it through the capsule into the tonsil as is stated by Fetterolf. Instead of this the blade accurately follows the outer surface of the capsule. Nor is the plica a thing to be sacrificed, as Fetterolf and others advise, for it is mucous membrane which is to be preserved to line the tonsillar fossa into which it applies itself without suture, and where it serves to preserve the free motion of the palatoglossus and palatopharyngeus muscles by preventing their cicatricial union (Fig. 8A and B).

The next step is the dissection of the upper tonsil (velar lobe) from its location above in the soft palate. The Tydings' forceps, passed up into the recessus palatinus, seizes the tonsil as near the plica supratonsillaris as possible and draws its upper pole downward and inward, making it possible to take a second hold upon the face of the tonsil with the second Tydings' forceps still higher up and so to forcibly pull down the velar lobe, causing it to bulge under the palate and so make its presence seen.

Where the tonsil is easily torn it is necessary to thrust the prongs of the forceps clear through the soft tonsillar substance into the capsule beyond. The strong downward pull upon the tonsil everts the recessus palatinus, causing it to turn wrong side out as a pocket may be turned. It is therefore not the tonsil itself, as has been stated, but the recessus palatinus that is everted. This eversion brings the plica supratonsillaris,

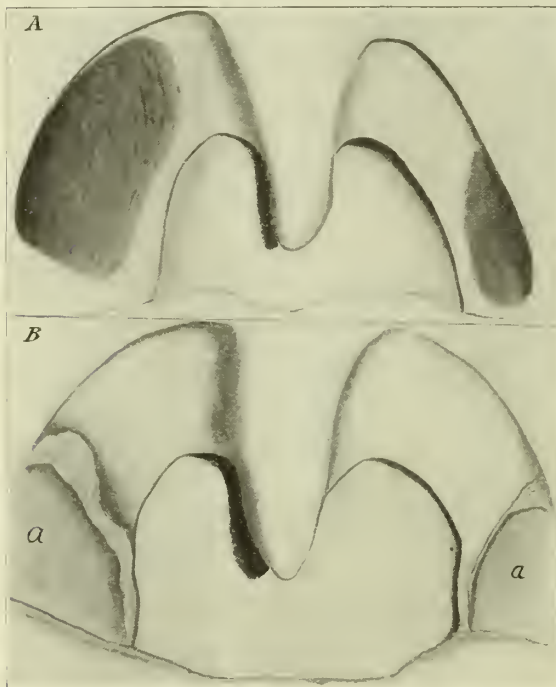


Fig. 8A. Oval cavity left after the excision of the tonsil.

Fig. 8B. Three days after the operation. The cavities shown in Fig. 9 have already closed. The saved plica triangularis, a, a, is seen to have applied itself to the wound surface, thus covering it with mucous membrane and preserving the freedom of motion of the pillars of the fauces.

one to arm the swab-holding forceps. The operation under local anesthesia calls for one assistant and one nurse to hand swabs.

The operation is begun by seizing the tonsil with a Tydings' forceps as near the posterior pillar as possible and by drawing it forward in order to bring its attachment to this pillar to view (Fig. 7A). In strongly projecting tonsils it is necessary to take a second hold further back upon the tonsil with a second pair of the forceps

stretched over the now protruding and no longer hidden upper tonsil (velar lobe) into plain view.

As the next step the blade of the sickle knife is introduced under the plica supratonsillar and made to sweep around the velar lobe, whose form is easily made out as it is moved by the forceps (Fig. 9A). As the occiput is lifted over the perineum, so the velar lobe is delivered from under the plica supratonsillar by the knife and the pull of the forceps which keeps taking fresh and higher holds under the tightly stretched plica supratonsillar, the velar lobe suddenly protruding naked from under its bed as the last fibers holding it are cut through. If the velar lobe be not thus sought for it may escape excision, especially where a distinct upper tonsil in a distinct capsule rests as an appendix upon a distinct lower one. If left the velar lobe is often a source of angina and peritonsillar abscess.

Freed thus above and on its sides the tonsil is now pulled strongly inward and downward while the Freer tonsil knife, of right and left pattern for the respective sides of the throat (Fig. 6c), severs the last connection of the tonsil with the throat by cutting through the loose connective tissue attaching the tonsillar capsule to the fascia of the superior constrictor of the pharynx, the knife cutting from above between the tonsil and its bed. (Fig. 9B.) The bend of the blade on the flat makes it curve away from the posterior pillar, so avoiding cutting it in the final cut.

Immediately after the removal of the tonsil a gauze sponge on an eight-inch forceps is pressed into the tonsillar fossa until bleeding stops. Usually it ceases in a minute or two. The wound left after the removal of even a large buried tonsil should form a smooth cavity with oval entrance and a recess upward into the soft palate whence the velar lobe has been removed. The direction of the palatoglossus and palatopharyngeus muscles may be seen underneath their fascial lining (Fig. 8A). The wound left after the excision of small tonsils collapses to a mere slit.

If there be doubt of the complete removal of the velar lobe the wound should be held open with tenacula for inspection of its upper recess.

My knives are sharpened before each operation. A dull edge can not cut the tough, fibrous tissue often encountered.

Immediate bleeding in tonsil excision under general anesthesia is always more free than under cocaine because of the recumbent position of the patient, venous stasis and the absence of cocaine vasoconstriction. On the other hand I have never seen delayed or prolonged bleeding follow tonsillectomy with general anesthesia in either adults or children. In adults, after the removal of fibrous tonsils and tonsils which had caused

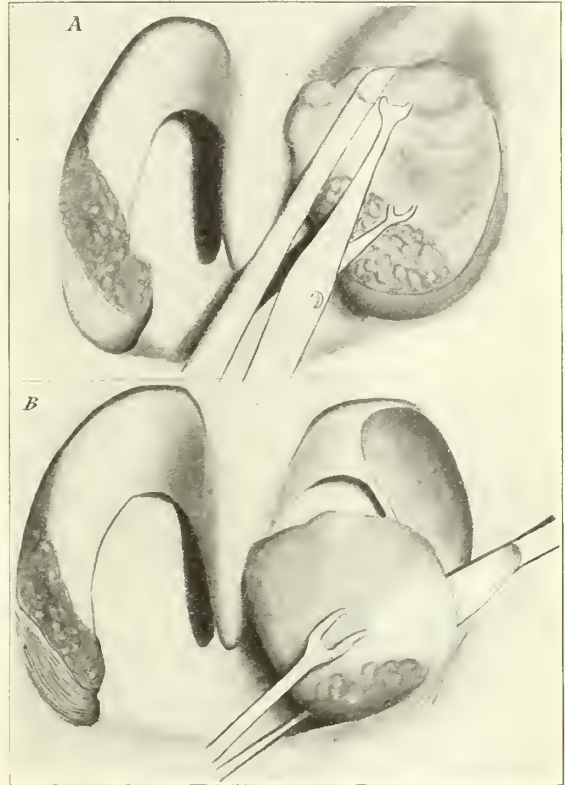


Fig. 9A. The tonsil is being delivered by the forceps and sickle knife from under the tense plica supratonsillar.

Fig. 9B. The tonsil knife curved on the flat severs the last connection of the tonsil with its bed.

peritonsillar abscess I have occasionally seen prolonged or delayed bleeding where local anesthesia was employed. I have never had any trouble from bleeding in children under either local or general anesthesia.

To control delayed bleeding I have found general measures often enough. I have the patient stand to lower blood pressure and in some cases for the same reason a hypodermic injection of apomorphin is used to create nausea. When covered with a piece of sea sponge (not with gauze) the Mikulicz clamp is often effective, though it may fail too. I have not had to sew up the

pillars or ligate vessels, but prolonged manual pressure with large gauze sponges on 8-inch forceps has occasionally been needed.

The reaction after the operation, as it involves no bruising or tearing of tissue and leaves incised wounds, is minimal. Patients may eat ordinary food after the second day.

The operation is suitable for 100 per cent or all cases where the removal of tonsils is indicated. There are no failures or partial excisions, as in the mechanical methods, whose unfitness in unsuitable cases does not become evident until their unsuccessful use has caused injury.

No after treatment is needed.

CASES ILLUSTRATIVE OF THE INTERDEPENDENCE OF OTOLARYNGOLOGY, RHINOLOGY, AND DENTISTRY.

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CHICAGO, ILL.

I shall not discuss at this time the relation of the palatal deformities in the causation of nasal obstruction and speech defects, nor the

and otolaryngologist. The main difficulty, I believe, lies in the fact of not having a clear picture of the multiform symptomatology, that may result when there is an irritation of the trifacial

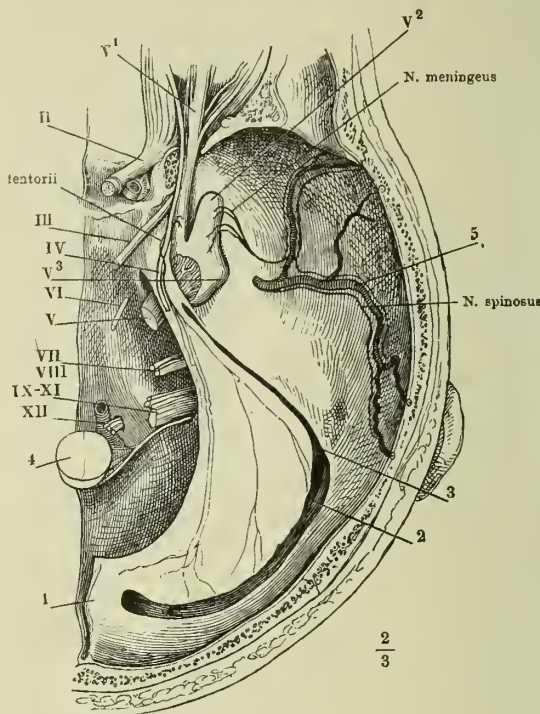


Fig. 2.

nerve somewhere. It will perhaps, therefore, not be out of place to illustrate the various organs and structures that may be affected from such an irritant Figs. 1-12. The important fact to remember is that while the particular nerve fila-

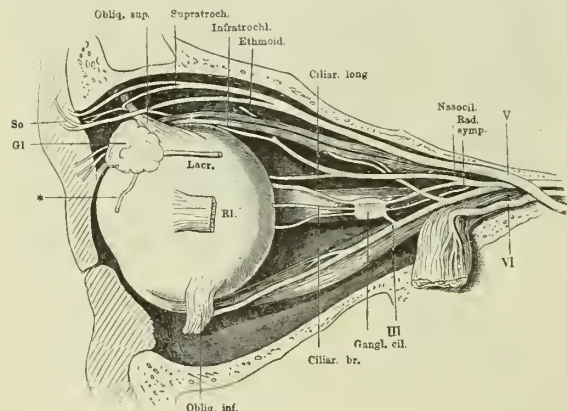


Fig. 1.

diseases of the teeth, as cavities, fistulae and pyorrhoea alveolaris, etc., in so far as they may cause secondary infection of the ora-pharynx by the continuity of structure, nor as points of chronic focal infection, but will confine my remarks to the neural side of the question and some of the diseases of the upper or lower jaws as necroses, and dentigerous cyst. This question I wish to limit to the diagnostic phase and by way of the report of some cases attempt to show that there is not a close enough association and not a working in harmony between the dentist

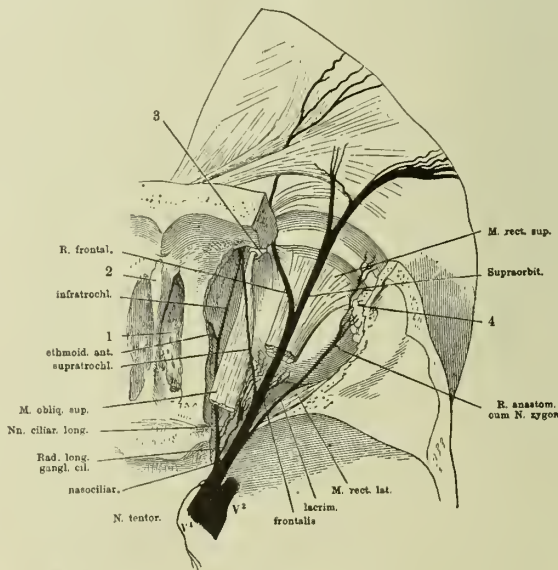


Fig. 3.

ment that is being irritated will respond in many instances, yet in some cases and these are the ones that we are particularly interested in, the pain or sensation will be referred along another

treatment by a rhinologist. Examination showed a bilateral septal ulceration of the ordinary catarrhal type. After cauterizing several times by various methods without success and determining by general

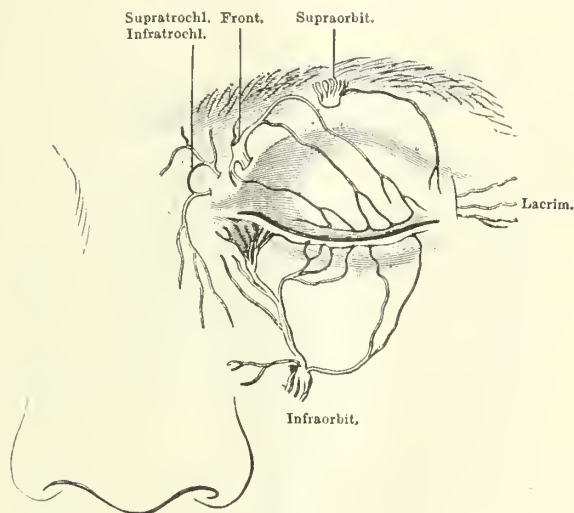


Fig. 4.

one or more branches quite a distance from the point of irritation. A sinus disease may cause a pain in the tooth and vice versa, or an irritation of the tooth may cause severe ear and head pains without any marked symptoms from the tooth. Furthermore the association of the fifth nerve with the other nerves of sensation of the neck through the sympathetic ganglions and

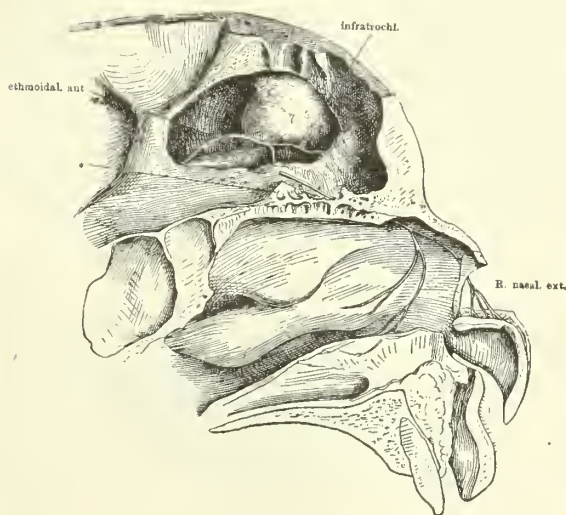


Fig. 5.

plexuses will explain many of the symptoms that may result from irritation about the teeth, etc.

Case 1. Miss A., had a nose bleed from both sides for several months, not affected by the usual local

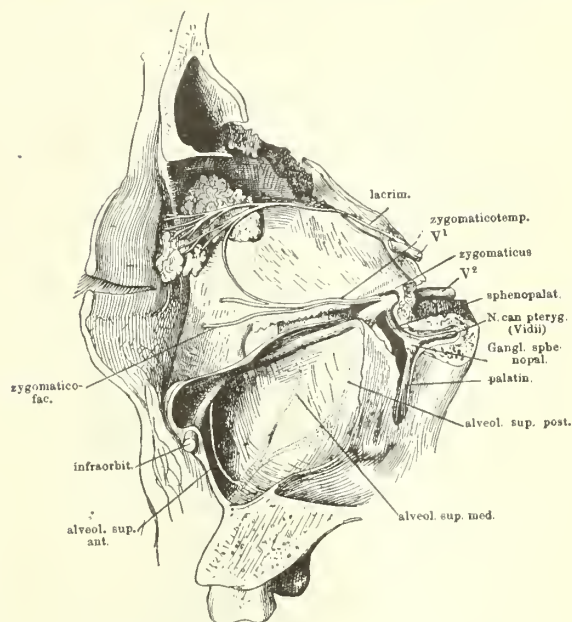


Fig. 6.

examination, laboratory, etc., that there was no systemic affection present, I determined to dissect the anterior septal cartilage submucously, a method that has invariably cured this condition of persistent bleeding in my experience. In this case, however, it failed,

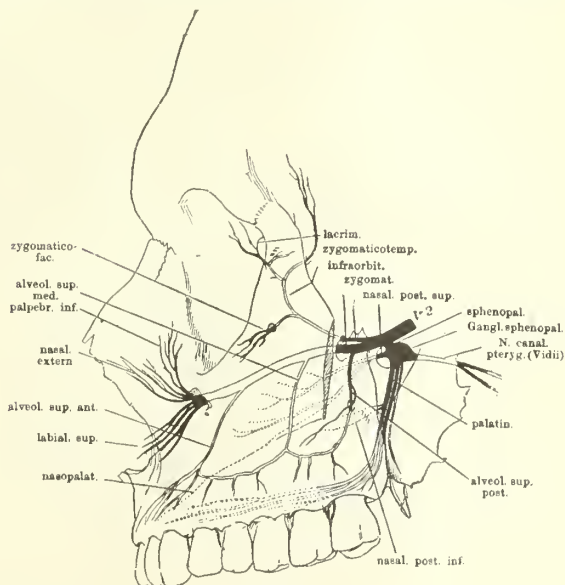


Fig. 7.

as did subsequent treatment. About four months later she developed a diffuse enlargement of the glands of the neck on the left side, especially the submaxillary group. These glands were not particularly painful.

This directed me to the teeth and I found she had a left second premolar on the upper jaw that had been crowned for about a year. The crown was loose and some pus could be expressed from the gingiva sur-

her teeth and jaws, and found quite a large area of involvement of the superior maxilla, so had another dentist remove the crown, and to our astonishment found a black tooth that came out without any effort,

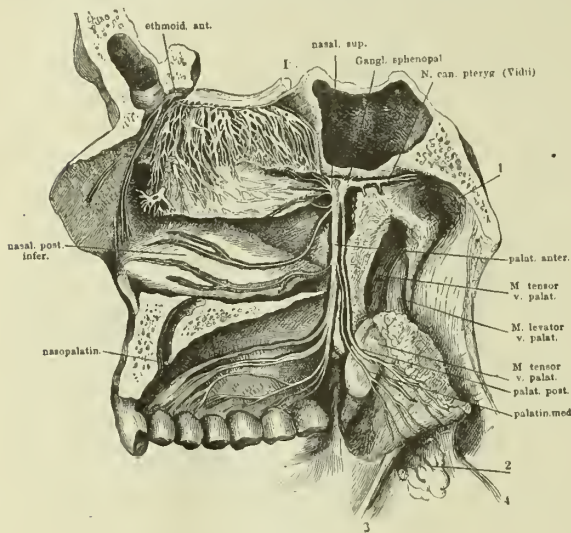


Fig. 8.

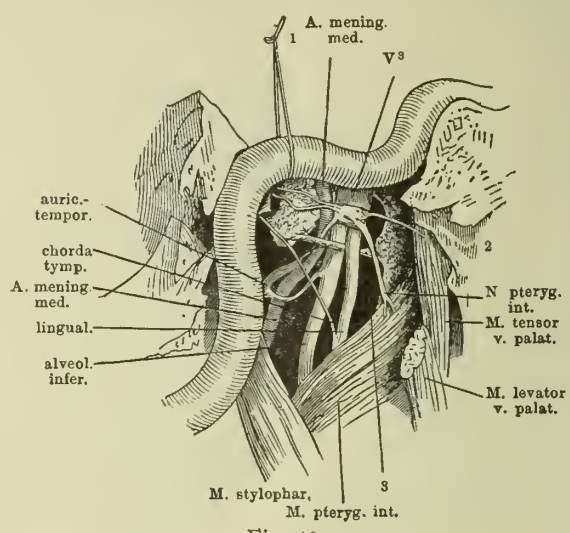


Fig. 10.

rounding it. I referred her back to her dentist and he in turn back to me, saying her teeth were all right. (Remark of usual type.) I now determined to remove the left tonsil that was somewhat submerged. There was no appreciable result from this operation on the glands after two months; in fact, the glands were larger and more of them. Exploring again the region of the tooth mentioned above, I found quite a recession

it being absolutely devitalized. Beyond the tooth could be felt a necroses of the jaw, and there was a fistula present measuring two inches toward the antrum. The following day I removed a sequestrum measuring about one-half inch in diameter and beyond it considerable necrosed bone could be made out; this necrosed bone extending towards the median line up to the septum. When this was removed, the glands receded and the bleeding of the nose stopped. There is one fact that must be mentioned, however, and that is, that the patient reacted strongly to tuberculin reaction and a small gland removed from the neck showed microscopically tuberculosis. This case demonstrated to me unmistakable evidences of insufficient cooperation between dentist and otolaryngologist. I believe, had the dentist investigated the tooth, made a radiogram, and not asked the patient to get a good nose doctor, he, the patient and myself would have had a better result.

Case 2. Mrs. S., who gave a history of having

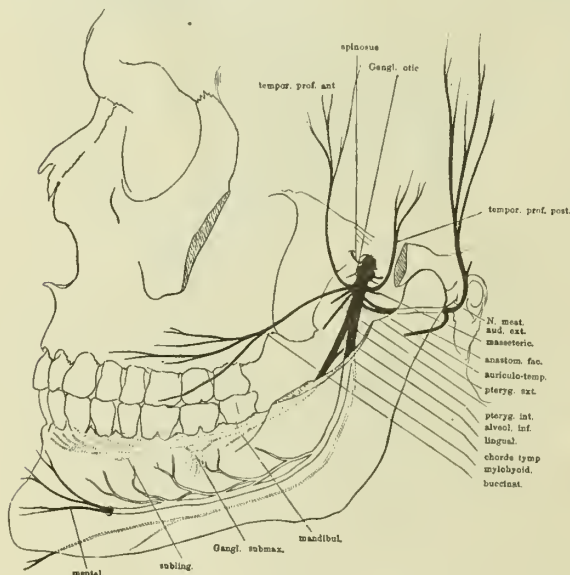


Fig. 9.

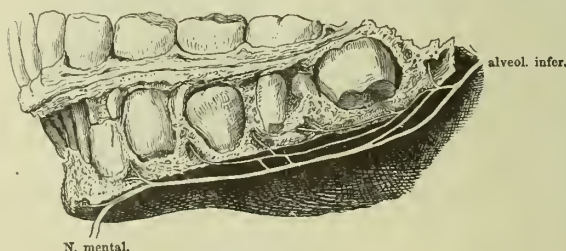


Fig. 11.

of the gum and a strong sweet odor. I again sent her back to the same dentist and he informed the patient after examination that what she needed was a good nose doctor. I now had an Roentgenogram made of

a left ear that she can practically hear nothing in, develops a very severe pain back of her right good hearing ear. A prominent oto-laryngologist is called and pronounces the trouble as mastoiditis of the rarer

form in that the drum is not affected. He advises a mastoid operation. Another otologist is called in consultation and they both agree the mastoid must be opened. This is done but no pus is found. The pain continues; in fact increases, and the otologist decides to open the drum, which he repeated several times without any relief of the pain, and there is no pus formation. The wounds heal very promptly but the pain continues and the hearing in her good ear becomes markedly diminished. A dentist is called in and he finds a sensitive tooth although patient never had a tooth ache. This tooth is drawn and all the pains disappear but her deafness, for which she consulted me, is very marked. This case again shows the lack of investigation on the part of the otolaryngologist, as to the etiology of the pain back of the ear.

Case 3. Mr. B. complains of a frontal headache more on the left side. A diagnosis by an otolaryngologist of non-suppurative ethmoiditis is made and a bilateral middle turbinectomy and ethmoid curettage is performed with temporary relief. I now saw him and found a very thick septum in the region of the tuberculum septi, also a very neurotic individual. On exploration of his teeth I could not detect anything wrong, so decided to resect the septum. There was temporary relief. I now referred him to his dentist, who said his teeth were all right. He complains more and becomes more nervous, so I consulted a neurologist who diagnosed neurasthenia and advised a trip. The patient was gone several weeks without any improvement. I sent him back to his dentist because he now said his jaw felt sore on the left side. The dentist now discovered an exposed nerve in a cavity covered by the gum and after the proper attention to this part all the symptoms disappeared and the patient is perfectly well, now several months since.

Case 4. Mrs. T., has been treated by an oral surgeon on account of a recurrent swelling on the right side of the upper jaw corresponding to the second molar. This swelling would be incised and it would discharge pus for some time, then close and refill again. I found at this time that she had no apparent antrum trouble, for which she had been treated, the nose being fairly normal. A stereoscopic radiogram revealed at once the diagnosis, namely, an unerupted molar, located very high, plus an infection of a probable dentigerous cyst. The operation proved the diagnosis correct. An interesting occurrence is worth while noting. After opening the cystic cavity I felt a smooth, hard body in the upper part of the same. It was very firmly embedded within the bone and while prying it loose I suddenly felt it give way and lost. I suspected that in prying it loose I might have forced it into the cavity of the antrum. On opening the antrum I found it empty, however. Three days later the patient complained that her right nostril persisted in being blocked and on examination I found this dwarfed tooth lying wedged in the inferior meatus externally to the inferior turbinated. It, therefore, passed through both antral walls while pry-

ing it loose. Patient made an uneventful recovery. The negative nasal examination in this case, suggesting the Roentgenogram which proved the correct diagnosis proves the point that a rhinologist should have seen this case while being treated by the oral surgeon or the oral surgeon should be familiar with otolaryngology technic of examination.

My conclusions therefore are that every otolaryngologist should have one or more den-

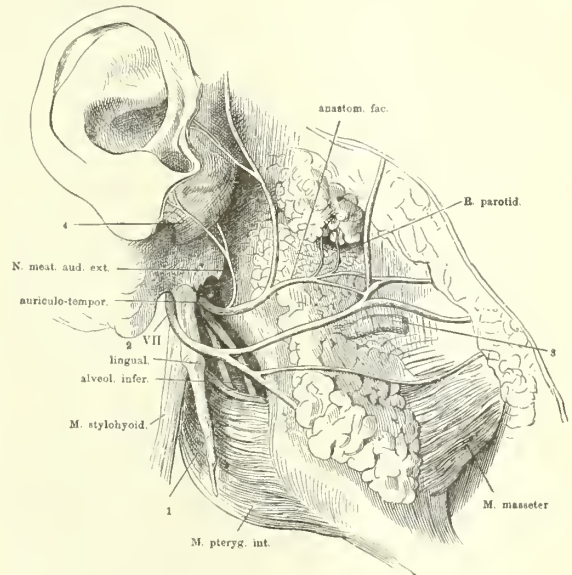


Fig. 12.

tists on his staff who are capable of analyzing a case and if the trouble is found by him in the teeth or about them the patient should be referred to the dentist of the patient. This I believe will stimulate all dentists to be more alert in the diagnosis of borderline conditions of dentist and oto-rhino-laryngologist.

DOES OPHTHALMIC SCIENCE IN THE UNITED STATES DEMAND AN ENDOWED SCHOOL OF REFRACTION?

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The uniform line of progress consists in our seeking constantly to surpass ourselves, and not in vain attempts to surpass others. The true competition of life is the competition of the individual with himself,—his present strivings to excel his past. If this is true of an individual it

is true of a society or a profession and it leads us to consider, whether or not we are wholly satisfied as a medical profession and particularly as a department of the profession, known as "Ophthalmology" with our present achievements.

The heritage of the twentieth century ophthalmic practice comes to us from no far distant day. It consists largely of the achievements of the last century, and particularly of the last half of that century. Indeed, it is within the lifetime of the present generation that the greatest progress in this branch of science has been accomplished; and the men who are engaged in this work today have just reasons to be proud of the advancement and success to which it has attained. But, notwithstanding the marvelous progress that has been made, let us ask ourselves in all seriousness if the last word has been spoken, the last line written, the last deed accomplished in this matter that affects directly one-half of the human race and indirectly the other half?

When we come to consider the fact that the human visual organ is not a perfect optical mechanism the truth of the foregoing statement is all the more apparent. Dr. George M. Gould, a very careful observer, says in his *Biographic Clinics*, Vol. IV: "I have measured something like 10,000 pairs of eyes, and not one of those pairs was without some imperfection of shape, size, or curvature, either in one or both of the eyes. An absolutely perfect pair of eyes does not probably exist."

Other observers have said: "Emmetropia is comparatively rare, occurring in not more than 1.5 or 2 per cent of properly examined eyes." Dr. Edward Jackson's view seems correct, as he tersely puts it: "Emmetropia is the ideal state of refraction."

It is plainly evident that ametropia is the almost universal condition. Eye strain affects profoundly the whole body metabolism; so will a sty (hordeolum), or an aching tooth (odontalgia) and many other local manifestations of disease. But the difference lies in this: the latter get well, while the former remains as a constant condition. Eye-strain is the consensus of symptoms arising from the use of ametropic or unbalanced eyes. It is the result of pathologic ocular action or function with a long train of symptoms that are dis-

tressing, exhausting and unnatural. We need but mention these facts, the truth of which is patent to us all.

The race makes progress not alone in proportion to its insight, but, likewise in proportion to its eyesight. Unquestionably this is an age of progress. The march of civilization has been measured by our intellectual and moral attainments, depending upon our inherent capacities to do the things worth while. Whatever has hindered these has retarded progress and made the task more difficult. Among the many things that might be mentioned as barriers, one stands out prominently and boldly in the foreground—the condition of poor vision, dependent upon refractive errors and muscular imbalance, with its sequelae on the health, happiness and vital energy of the race.

Of the one hundred million people (approximately) in the United States it is fair to presume that one-half or fifty million suffer from refractive errors. About 15,000,000 of the population of America are afflicted with "Scoliosis." Dr. Gould makes the following statement: "There are at least fifteen millions of American children and adults afflicted with lateral curvature of the spine. All the smiles of incredulity will not, alas, lessen the number, nor the horror of the consequences of abnormalism. There is no existing machinery, no care or solicitude to prevent the sufferings, none to prevent the very existence of these millions of scoliotics. The defect arises unknown and unsuspected by physicians and orthopedists; when it is incurable the orthopedists learn of a few cases. Surely over 90 per cent. of these scoliotics owe their tragedies to ocular function and malfunction, readily demonstrable, and its results always preventable."

Dr. Leo-Wolfe, of Niagara Falls, N. Y., "reports cures in cases of mucous colitis, migraine, hysteria, insomnia, neurasthenia, disorders of digestion, melancholia, bilious attacks, constipation, colds and nasal disorders, nervous dyspepsia, swoonings, dizziness, chlorosis, all by means of correction of errors of refraction." Dr. Ranney of New York City has rendered the profession a great service by his work "Eye strain in health and disease," by calling attention to the role of eye troubles in causing a vast number of

reflex symptoms and their cure. Others eminent in this field also have performed a like service, and I believe that our own experience largely corroborates their views in the general truths they have presented.

Is the twentieth century ophthalmic practice thoroughly competent to relieve this large class of suffering humanity? Is it not true that this branch of ophthalmic practice is to a certain extent neglected or treated indifferently by ophthalmic surgeons in view of its supreme importance? Is not the ophthalmologist more interested in performing a classical operation than in doing a scientific and painstaking refraction? In other words, are we not more neglectful of our responsibilities and obligations to our patients in the one case than the other? It cannot be wholly due to the difference of fees between operative work and refraction work but rather in fact that the fascination for surgery overshadows the satisfaction and gratification arising from doing good refraction work.

I believe that in the preparation of our work as ophthalmologists the stress of emphasis is placed on the surgical features, to the neglect of the importance and value of refraction. The student is particularly anxious to attend surgical clinics, and learn technique, and familiarize himself with every phase of operative procedure, which, by the way, is commendable and proper; but his attention to the subject should not be absorbed, nor his interest engrossed to the extent that he loses sight of another very important work that he will be called upon to perform in the matter of thorough, careful, scientific refraction.

Refraction work sustains the same relation to eye surgery as the practice of medicine does to general surgery. And while there are interdependent relations existing between them, the time will come, no doubt, when they will be farther separated into more particular individual lines of practice. If such be the case, and the trend of progress points that way, it is only reasonable to expect that a greater degree of competency and efficiency will obtain in both of these lines of practice.

Does the new ophthalmology require better facilities, better qualifications, better skill in re-

fraction work in order to increase efficiency and promote progress in ophthalmic science? It is not the purpose of this paper to minimize or criticize the good work that has been accomplished in any department of ophthalmic science or in any institution or clinic wherever the same is competently taught, but it is the opinion of not a few men engaged in this work that refraction, important as it is, as far reaching as its demands must needs be, is not thoroughly appreciated by the medical profession nor held in the high value to which its importance entitles it.

Assuming that our premises are correct: that ametropia is almost a universal condition, and that fully one-half of the people suffer from refractive errors, it is plainly evident that there is a vastly greater number of people distressed by visual errors than those requiring operations, or afflicted by diseased eyes such as: keratitis, choroiditis, retinitis, glaucoma, cataract, etc. And this large number that suffer from eye strain and its consequences are actually distressed and proscribed in the affairs of their individual occupations of life. The condition of distress and suffering is actual and real and they are to this extent handicapped in the affairs of life that make advancement in the progress of the nation's growth and history.

In view of these facts, if such they are, does not ophthalmic science in the United States demand an endowed school of refraction? A school or institution that is thoroughly appointed with every facility with ample means and equipment, with a well qualified professorship and abundant clinical material to teach this important branch of science? A school in which not only the fundamental and basic principles are taught but a school in which the student has the opportunity of working out a large number of refractions himself under proper direction. A school with a regular prescribed course in the theory and practice offering a one or two years course in this particular field of work?

I believe the time is not far distant when the medical profession will more thoroughly appreciate the benefits to humanity that may be derived from the proper care and treatment of the eyes. In our state the "Illinois Association for the Conservation of Vision and Prevention of

Blindness" is doing a most excellent work. Its slogan is "Let Us See." I want to adopt these words and sentiments in my paper today with this brief amendment, so that it will read thus: Let us see, without pain, without headache, without eye-strain and the only way that we shall ever reach this goal in so far as refraction is concerned is by broadening and widening and deepening the professional spirit in this direction and by furnishing better opportunities and facilities in this work.

With this object in view, I believe that if we had an endowed school of refraction in the United States where this subject could be taught more thoroughly and competently; wherein the general optical principals; the philosophy of light and lenses; the theory of glasses; the optical properties of the normal eye; the anomalies of refraction and accommodation; the scientific tests of vision and ocular movements, together with their direct bearing and relation to health and disease, indeed, wherein every phase of this subject could be taught in course, under a properly arranged curriculum, supplemented by the practical performance of working out a large number of refractive and muscular errors, under suitable supervision, that it would be directly an advance step in ophthalmic science and indirectly a great boom to suffering humanity.

It would place this branch of ophthalmology in a better light and on a higher plane before the whole profession of medicine and surgery and thereby command a higher respect and a just appreciation of its value. It would be an incentive to better legislation in every state in the Union. And last but by no means not the least, it would offer an opportunity to the men and women who are engaging in this work to render a better scientific, and more valuable professional service to humanity.

DISCUSSION.

Dr. A. L. Adams, Jacksonville: *Mr. Chairman.* I think Dr. Smith has struck a true note in his paper in regard to the matter of paying more attention to errors of refraction. We will all agree that the larger percentage of eye work is dealing with errors of refraction, and yet how seldom do we hear any discussion on the subject. There is but one paper on the program of this section, and sometimes it will go for years without having a discussion on any phase of refraction work. It does not seem to me that this

is as it should be. There certainly are a great many problems that should be worked out, a great many things that are open for discussion, and we should have those subjects up here. We believe that we might even broaden this subject a little bit more. We believe that we are ready for a school of ophthalmology. We all know that heretofore there has been no systematized and supervised study of ophthalmology, and we believe that the profession would be very much benefited by such systematized and supervised study. This is not entirely a matter for ourselves. It does not really make so much difference to us. We have established our reputations, we have a certain clientele, but the question is one of the future. We may think it will go on in the same old way as it has, but I assure you, gentlemen, if you had attended the legislative committee in Springfield last year, when the optometrist legislation was up, you would have a different idea of what might take place in Illinois. They are a large body of men who are ready to treat the eyes without medical training, and with their persistence and energy it is only a question of time when they are going to encroach on the field. Mr. Prentiss of New York, in discussing this problem a short time ago before the American Optical Association, quite surprised the other members present by saying that he believed the time is coming when those practicing optometry should have the needed medical education, they should have this training in optics, and also a training in medicine, and at once they thought that he had deserted their cause, but instead of deserting it he had a far broader plan. This plan has been outlined by the secretary of the New York Society of Opticians—I do not know that this is their exact title—the secretary of that organization has stated that it is their endeavor to have a degree issued to optometrists or opticians who have spent a stated time in the study of optics and have spent one year at a recognized medical institution. The degree would be "Doctor of Optics," and they would then be ready to treat the eye in its entirety. I would have you take notice of the last words, "and then treat the eye in its entirety." Now, this is the program that has been laid out, and there is a large body of men that are working toward this end. The day has come when we have state boards who say who shall be plumbers, barbers, and who shall be everything under the sun but ophthalmologists.

I believe we shall make a mistake if we do not arrange for the systematized and supervised study of our work. I believe it would better be under the direction of the universities. The only plans that thus far have been carried out along this line have been at Oxford, England, and in the University of Colorado. At these schools plans have been made by which after graduation in medicine, where the course is specially adapted for men to study ophthalmology, to spend one year in systematized, supervised study of clinical ophthalmology and then receive the degree of Doctor of Ophthalmology. We should have some definite plan to work to, and not drift, as we have

been doing, along the line of preparation for this kind of work.

Dr. R. J. Tivnen, Chicago: Dr. Smith's paper is certainly very timely, and it is on a subject that appeals to us with a great deal of interest. On the particular phase of Dr. Smith's paper which has been discussed by Dr. Adams, I wish to say that we of Chicago have at each session of the legislature appointed a committee to oppose pernicious legislation of this character. I rise simply to make a motion that the chairman of this section be authorized to appoint a committee to study the question of refraction in all its phases, educational, legislative, along the line brought out in the doctor's paper. I have no doubt this is the desire of Dr. Smith. I would like to have the mover of the motion excused from having a place on that committee.

(Motion seconded and carried.)

Dr. J. Whitefield Smith, closing: I wish to thank the gentlemen who kindly discussed the paper. They have discussed a point that I did not quite get to in the closing remarks. I think the time has come to take an advanced step in the science of ophthalmology and to have an endowed school, a forceful and well appointed school, a school that is well equipped to teach the subject of refraction in all its branches, such as the philosophy of light and lenses, the analysis of refraction, a school in which this is taught so that the students may have an opportunity to learn the subject thoroughly from the ground up in theory and at the same time have an opportunity to work out a large number of refraction cases under supervision. This should be a school for medical men, men who have been graduated in medicine and in which they may obtain a degree after a certain number of months or a year or more of study. No doubt this subject may be well studied in the larger cities where men can devote time and effort exclusively to surgical work, but there are places in our Union in the smaller cities where men who pretend to do eye work have to do all branches and all phases of it, and for this reason I think we would have a better class of ophthalmologists, doing better work, giving better service to their clientele if they had a better foundation. When I say this I do not say anything to the disparagement of any school or clinic wherein this subject has been taught thoroughly and well, but usually when the ophthalmologist who is interested in this study goes abroad, he is anxious and overanxious to see surgical work, and to see the best operators, and to learn surgical technique and all that kind of thing, and the result of this is that it overshadows an important work for which I am making a plea. That is refraction work, because we have to do this work, and it should be done competently and well. There are hundreds and thousands of men, women, and especially children in our public schools, who go about with headaches and a long train of nervous symptoms that follow from refractive errors that can be relieved of their troubles by and through the services of competent oculists.

THE FUNCTION OF THE FAUCIAL TONSILS, AND THE INDICATIONS FOR THEIR REMOVAL.

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Anatomy: A small almond-shaped body, situated on each side of the fauces, between the anterior and posterior pillars of the soft palate. It consists of an aggregation of from ten to eighteen lymph follicles, and is covered by mucous membrane, which dips into certain depressions, called crypts. The tonsil is located and partially enveloped in the sinus tonsillaris, which is bounded in front by the anterior pillar or palatoglossus muscle, and the back by the posterior pillar or palatopharyngeus muscle. The pillars meet above to unite with the soft palate; inferiorly they diverge and enter into the tissues at the base of the tongue and the lateral wall of the pharynx. The tonsil is supplied with blood by the ascending pharyngeal branch of the external carotid, the ascending palatine and tonsillar branches of the facial, the tonsillar branch of the dorsalis linguae, and the descending palatine branches of the external maxillary. When the tonsil is in a normal condition, these vessels are small, but sometimes they are large and may give rise to an alarming hemorrhage in tonsil operations, and especially is this true of these vessels in acute inflammations of the tonsil. The veins terminate in the tonsillar plexus on the outer side of the tonsil. The nerve supply is derived from Meckel's ganglion, and from the glosso-pharyngeal.

The relation of the tonsil to the lymphatic vessels is somewhat different from that found elsewhere in the lymphatic system. The lymphatics pass through the glands, but they have their origin in the tonsil; their terminals or points of origin being plexuses around each follicle.

The question of most importance from a clinical point of view, is the fact that these lymphatic vessels from the tonsil drain their lymph into the chain of cervical glands underneath the sternocleidomastoid muscle, from thence into the thoracic glands, and finally into the thoracic duct.

Many functions have been assigned by different authorities to the faucial tonsil, and among the

plausible functions there have been a great many that are very unpalatable and even absurd in the extreme. Two ideas that the laity have in regard to the use or function of the tonsils are, first, that they are essential to the normal tone of voice, especially in singing; second, that their removal from a person who has a tubercular diathesis will cause the disease to migrate to the lungs. Of course neither of these require any serious comment, only I might say that a person having hypertrophy of the tonsil will talk and sing much better after their removal (provided no injury is done to the pillars) and the free breathing which will result will reduce the risk of contracting lung troubles. Now as to the importance of the removal of an infected tonsil, I will try to explain more fully before I complete this paper.

Another old theory was that the tonsil had some necessary but not definitely understood connection or relationship with the organs of generation, and that the removal of the tonsil might cause sterility. We can now make the positive statement that if there is any relationship whatever between these organs, it is an unimportant one.

The theory that the tonsil in early life is a blood forming organ, and after the tonsil has passed its active stage this function is assumed by the bone marrow, has had many advocates, and there may be some truth in this theory, but it has not been established beyond doubt. That the tonsil is a secreting organ, a great many have made an effort to prove, without results. Some have held that it produces a digestive ferment which converted starch into sugar, others have held with equal strength that the tonsil secretes a mucus which aided deglutition by moistening the food. An internal secretion, such as the thyroid and adrenals, has been sought for in the tonsil, but thus far no conclusive proof of same has been found. Scheier, experimenting along this line, got a notable fall in the blood pressure, but all other observers so far as I know, have obtained a negative result.

Ashhurst holds that the tonsil is a protective organ, but from only an eliminative standpoint. In support of his theory he points to those diseases where the local manifestations of the disease develops in the tonsil after other general

symptoms of the disease have existed for some time. This theory cannot be maintained by any positive clinical evidence, as it is a well known fact that in a great number of cases of diphtheria and exanthems that the manifestations of the disease appear in the tonsil before any other symptoms.

Stohr discovered that through the epithelium of the tonsil there is a constant stream of leucocytes wandering forth; the leucocytes swarm about like patrols or watches, and fall upon the foreign particles, take them up and destroy them by phagocytosis. Brieger, however, showed that it was not the leucocytes which come forth on the mission as Stohr described, but the lymphocytes, he claims are the sentinels (they are not supposed by the physiologists to be phagocytic in their nature); further, he contends that the lymphocytes do not of themselves actively and independently change their position, but are passively transported from the tissue of the tonsil.

Goodale in observing the absorptive power of the tonsil, found that the tonsil would to a slight degree take up a watery solution of carmin. He also found that while bacteria are common in the crypts that they rarely make entry into the tonsillar tissue in the normal tonsil. While this is true perhaps, their toxins find an easy avenue of entrance into the general blood current through the lymphatics.

There are many other theories advanced as to the function of the faucial tonsil. I have not sufficient time in this paper to mention them all, only the chief ones. Among the many theories advanced there are among some of them a few evidences of truth, and we are led to accept the physiological function of the tonsil (when in its normal condition) as that of a sentinel of protection to the general circulation, and that this use or function only continues until about the sixth or eighth year is evidenced by the fact that at this age the tonsil begins to atrophy and by the twelfth or fourteenth year it has nearly completely disappeared or is only an enlarged mass of cicatricial tissue between the pillars. A tonsil at this period of life, that is visible to any extent, may reasonably be considered a morbid one.

It is reasonable to assume that the tonsil has a protective function at least during its period of normal activity, and as an evidence of this fact,

we find the leucocytes present with their noted phagocytic character.

I desire to quote the following from the excellent paper on the tonsil, read by Dr. Charles Robertson, of Chicago, at the sixtieth annual session of the American Medical Association at Atlantic City, June, 1909:

"The true function of the tonsil has to do with early life, and at birth the gland is so small as to be unimportant. It attains its full development by the sixth or eighth year, and then begins to atrophy."

He further states:

"So far as I can learn the physiology of the tonsil, as we know it, has been limited to the study, for the most part, of pathologic glands and has not included the so-called normal tonsil, which works its decline after the sixth or eighth year. If the tonsil in a normal state is removed *in toto*, there is no disastrous effects, as in the case of the thyroid. On the other hand, the individual is improved in health."

It may also be true that the tonsil is a factor in blood building, but only in the first few years of life, and that this function is most active during infancy. When any infection gets into the tonsil, it is reasonable to suppose, that the tonsil makes an effort to destroy the invaders, and if it fails in its attempt, the next lymph glands in order of defence, the submaxillary, take up the battle, and if it also fails, the cervical glands become the defenders, and if all should fail, which is very reasonable to suppose, in some cases, the general lymphatic system is infected, and while it may be true that all these sentinels or defenders may prove victorious as regards their battle against the invading bacteria, but their defence can not be so effective against their products, the toxins.

The indications for the removal of the tonsils may be divided into two classes. First, those cases in which the tonsil, by reason of its infected condition, is the cause of diseases by metastasis. Second, those cases, in which the tonsil by reason of simple hypertrophy, obstructs breathing, etc., thereby giving rise to certain dangerous results, which I will explain under this class. A review of the literature is convincing even to the mind of the skeptic, as it is full of reports of cases, showing the tonsil to be the portal of infection of many diseases of a metastatic origin. In addition to the diseases arising through the tonsil by metastasis, there are those limited to, or within the tonsil itself. In this class of cases the tonsil is

a receptacle or reservoir for all kinds of infecting bacteria, as a result, perhaps, of repeated attacks of tonsilitis, or peritonsillar abscesses, thus polluting the general circulation through the lymphatics.

Among some of the diseases that can be traced to the tonsil as the origin or portal of infection are: rheumatism, kidney infection, endocarditis, pericarditis, myocarditis, streptococcic peritonitis, streptococcic pleurisy, pneumonia, hepatitis, pancreatitis, gastroenteritis, appendicitis and many other diseases.

Perhaps one of the strongest charges that can be brought against the tonsil, is that it is frequently the source of infection in pulmonary tuberculosis. The route of infection to the lung is usually by the lymphatics as already described.

I wish to report the following case which I operated on in 1910, at Covington, Ky.:

Miss F., aged 20 years, was referred to me by Dr. Duvall of Warsaw, Ky. The doctor's reason for referring the case was that the patient had been suffering with asthma for several years, and as she had infected tonsils, he thought that perhaps their removal would improve her general health. The tonsils were not very large, but very much infected. I removed them by the snare method, within the capsule. The patient has never had an attack of asthma since the operation, and she rapidly regained her normal health. I noticed the report of another case of asthma being cured by the removal of the tonsils, in the *Journal A. M. A.*, 1913. I regret very much that I have not been able to locate the *Journal*, and therefore cannot give the name of operator.

I have already heretofore shown how easily an infection can be drained from the tonsil into the lymphatic system. We can readily see how we can have an infection in any part or organ of the body, and more especially so where lymphoid tissue is found, coming directly from the tonsil as the portal of entry. Any disease of an infectious origin can enter through this route, and there is no good reason to doubt the supposition that many cases of infection of the appendix of an obscure origin can be accounted for by this theory of infection.

It is especially important in this class of cases, where infection by metastasis is suspected, that no tonsillar tissue should remain. I therefore heartily endorse the statement made by Dr. Todd of Minneapolis some years ago in the *Journal A. M. A.*: "It is evident that the profession is appreciating the fact that the tonsillotome has now no place in modern surgery. The removal of the entire tonsil in its capsule, leaving intact its bed of muscular tissue and the faucial pillars uninjured, gives the best ultimate results."

In the second class we have those cases in which

we find the simple hypertrophy of the tonsil and their removal is demanded in order to bring about full, deep breathing. In this class of cases we usually find together with the enlarged tonsil, enlargement of the adenoids, thereby making the cleaning up of the throat more important. I have seen cases of this character in which the obstruction to breathing was so great that the chest was greatly deformed as a result.

In this class of cases we are apt to find the child dull mentally, and especially is this true if the hypertrophy of the tonsil is accompanied by adenoids.

Ear complications are very frequently found in this class of cases. And further we have many cases of mastoid involvement due to enlarged tonsils and adenoids blocking the drainage of the eustachian tubes.

It is claimed, on good authority, that of the patients in our deaf institutions, 70 per cent. can be traced to conditions of this character, either directly or indirectly. In those cases of recurring tonsilitis the removal of the tonsils is indicated. Also in cases of peritonsillar abscesses. The results obtained by operative procedure in this class of cases is truly remarkable.

It is indeed very unfortunate that few general practitioners have until the past few years placed the proper significance upon the tonsil as a factor in causing disease. It is also to be deplored that the operation for the removal of the tonsils is usually considered to be a very minor operation by the laity and by quite a number of the profession. The operation should always be considered as a major operation, and under no circumstances should the patient be allowed to leave the hospital before the third or fourth day.

In conclusion, we have arrived at the reasonable viewpoint that the tonsil is a protective organ the same as any other lymph gland. This, of course, is only true so long as the tonsil is in a perfectly normal condition. When its condition becomes pathological, its function is perverted, and in place of being one of the sentinels of protection, it becomes one of the most dangerous portals for the entrance of all kinds of bacteria and their toxins. The removal of the tonsil when its function is impaired is simply the closing of a dangerous portal for the entry of infectious material into the circulation.

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THE TOPOGRAPHY OF THE LARYNX.*

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The topography of the larynx has been a subject of great interest to me, in my researches dur-

ing the past years, and if the knowledge gained thereby be a profit or a stimulus to further research to any readers of this article my object in bringing the subject before you is not in vain.

Much of my information has been based upon my study of the larynx of animals, as well as that of man. However, I will confine myself at this time to the human larynx.

The larynx is the upper part of the wind pipe, and is the organ for the production of sound. It is located at the upper and anterior part of the neck, extending from the hypo-pharynx to the beginning of the trachea.

The anlage of the respiratory system makes its appearance between the 20th and 25th day. A groove develops on the ventral side of the esophageal portion of the primitive gut, extending caudally a short distance from the area of the 4th inner bronchial groove. A constriction soon separates the tracheal groove from the gut which appears at the caudal end and gradually progresses forward. It is from this tube that the future respiratory system develops, the cephalic end of this tube giving rise to the larynx. Chondroblasts make their appearance in this area about the 4th week of gestation, and are the first signs of the future cartilages.

The cricoid cartilage makes its appearance about the 5th week of intrauterine life. According to H. Lissner in the *Jour. of A. & Phys.*

There is a predominance of condensed mesenchyma about the ventral portion or arcus which fades off laterally and is again emphasized by greater compactness dorsal to the lumen, but not so well marked as ventrally. The cricoid originates from an anlage primarily ventral, in what is later called the anterior arcus; also, though less prominently, from two slightly separated posterior lateral portions. The lateral part of the ring develops by a welding of the anterior and posterior parts laterally.

The thyroid cartilage makes its appearance about the same time as the cricoid. It is formed by two lateral anlages which grow around and fuse ventrally. According to Nicolas there is a pars intermediary which develops anteriorly.

The arytenoids cannot be definitely determined at five weeks. They are continuous with the cricoid in the beginning by fibrous tissue, which later becomes segmented off.

The epiglottis makes its appearance a short time after the cricoid and thyroid, and is continuous posteriorly with the cuneiform cartilages, which

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Goppert considers are derivatives of the epiglottis. However in many cases they are wanting. The cartilages of Sanctorini (cornicula laryngis) become segmented off from the arytenoids. There seems to be many varied opinions as to the development of the larynx, but I will refrain from discussing it at this time.

The frame work of the larynx is made up of cartilages, ligaments and membranes. The cartilages are three single and three pairs. The single ones are the cricoid, thyroid and epiglottis, the double ones are the arytenoids, cornicula laryngis and cuneiform.

The structure of the larynx is cartilage in the young and osseous and cartilaginous tissue in later life. Most authors speak only of cartilage, but I find most all adult's thyroids are ossified, also the posterior part of the cricoid.

The cricoid forms the foundation of the larynx. Its lowest border forms the lowest part of the larynx and the beginning of the trachea. In the young it is cartilage and about the 20th year it becomes ossified. It resembles a signet ring in shape. In some specimens I found it fused by a cartilaginous structure with the first and second tracheal ring. Its depth posteriorly in the center is from 23 to 25 m.m., anteriorly 4 to 6 m.m. Its diameter anterior-posteriorly and laterally is the same, about 15 to 18 m.m. Its width from one articular facet to the other is 30-32 m.m. The distance between the upper central part of the cricoid and lower anterior part of the thyroid is about 15 m.m. It lies just anterior to the 6th cervical vertebra. Its external surface gives origin, in front and laterally to the crico-thyroid and posteriorly to the inferior constrictor. On the posterior lateral aspect there are small facets for articulation with the inferior cornua of the thyroid. On the posterior surface there is a perpendicular ridge which gives rise to the longitudinal fibers of the esophagus, and a depression on each side for the cricoarytaenoideus posticus muscle. In some specimens I was unable to find facets for the reception of the inferior cornua of the thyroid. In these cases the cornua seemed to be buried in connective tissue external to the periostenum.

The superior border is horizontal in front, but as it curves backward gradually ascends upward in an oblique direction. The posterior upper

surface lying about 20 m.m. higher than the anterior superior surface. On this elevated posterior superior surface there are two facets, which articulate with the arytenoids. The lateral and anterior upper border furnishes attachment for the crico-thyroid membrane and the cricoarytenoideus lateralis muscle. The lower border is more on a horizontal plane, with only a slight bowing upward on the lateral aspect.

The thyroid is composed of two wings connected anteriorly in the middle line and forming an acute angle. It begins to ossify about the 18th year. The posterior borders are separated by a distance of about 30 m.m. The wings or alae are irregularly quadrilateral in form and vary in thickness from 2 to 5 m.m. Where the two wings meet in front there is a deep depression above, known as the thyroid notch, which has a depth of 10 to 15 m.m. Extending upward from the posterior superior part of the thyroid of both wings are the superior cornua, which extend upward, slightly inward and backward, and unite indirectly with the greater cornua of the hyoid bone by the posterior part of the thyro-hyoid ligament. The inferior border furnishes attachment for the crico-thyroid membrane and crico-thyroid muscle. Extending downward, forward and inward from the posterior inferior part of the alae are the inferior cornua which in most cases articulate with the facet on the cricoid. These cornua furnish attachment for the inferior constrictors and cricothyroideus muscles. The external surface of the wings are somewhat convex and presents a slight ridge which extends from behind forward and downward and furnishes attachment for the sterno-thyroid and thyro-hyoid muscles. Posterior to these muscles the inferior constrictors of the pharynx are attachment. The inner surface of the alae is slightly concave in the horizontal and perpendicular planes. The upper half of the wings form the outer walls of the sinus pyriformis. At the acute angle 3 to 4 m.m. below the thyroid notch the epiglottis is attached. About 12 m.m. above the lower border of the union of the two alae on each side of the median line are attached the true vocal cords, and 3 to 4 m.m. above the true cords are the attachments of the false cords. From the tip of the superior cornua to the lowest point of the inferior cornua measures about 42 m. m.

The depth of the cartilage at the union of the two alæ from the thyroid notch to the inferior border varies between 18-20 m.m. Its greatest antero-posterior measurement is 36 to 40 m.m. In performing a thyrotomy this cartilage is split down its center at the junction of the two wings so as to avoid injuring the vocal cords.

The arytenoid cartilages are usually spoken of as being pyramidal bodies which I believe gives the wrong impression, for they are only pyramidal in form at the lower $\frac{2}{3}$, while the upper $\frac{1}{3}$ becomes flattened antro-posteriorly and presents only an anterior and posterior surface, and an internal and external border, which taper to a point. The lower $\frac{2}{3}$ is pyramidal like and presents four surfaces and six borders. The surfaces are the antero-external, posterior, internal and inferior. The six borders are the external, antero and postero-internal; the inferior are the antero-external, postero-inferior and inferior internal. The apex is directed upward, backward and a little inward. The inferior surface is concave and presents a facet for articulation with the cricoid. The height of the cartilages are about 20 m.m. The three surfaces are lost 8 to 12 m.m. from the base. I find these cartilages are not always uniform in size, one usually being a little larger than the other. Where the antero-external, inferior and internal surfaces meet is known as the vocal process. The length of the cartilage from the posterior inner edge at base to tip of vocal process is 14 to 16 m.m. Where the antero-external inferior and posterior surface meet is known as the muscular process. The distance between the vocal process and muscular process is about 15 m.m. The distance between the muscular process and inner edge along the posterior surface at base varied from 8 to 12 m.m.

The anterior external surface is very irregular with a deep depression for attachment of the thyreoarytaenoideus muscles. To the anterior surface of the muscular process is attached the cricoarytaenoideus posticus. To the posterior surfaces which are smooth the interarytaenoideus. To the tips are attached the aryepiglotticus.

It is the general opinion regarding the action of the arytenoids that they have a lateral movement outward and inward. I venture to somewhat disagree with this theory and suggest that the movement is mostly forward and backward,

with some lateral motion which would open and close the glottis. This idea would be borne out by the work of A. Kuttner in *Archiv. of Laryngol. U. Rhinol.* Where he mentions the fact that the cricoarytaenoideus posticus was removed in animals and did not lead to a permanent medial position of the cords. The outward movement on the injured side being somewhat less than on the uninjured side.

The cornicula laryngis are two small cartilaginous bodies situated upon the summit of the arytenoids in the aryepiglottic membrane.

The cuneiform are two small club-shaped cartilages located in the ary-epiglottic folds lying just anterior and a little above the cornicula laryngis. In many specimens these cartilages are missing.

The epiglottis resembles the shape of a tennis racket, except that it is concave posteriorly from side to side. The handle is directed downward and attached to the inner side of the angle formed by the union of the two alæ about 6 m.m. below the thyroid notch. It is held in position by the thyro-epiglottidean ligament. Its upper portion is free, and located posterior and below the base of the tongue.

The ligaments and membranes which hold these cartilages and bony structures together are the thyro-hyoid membrane which extend from the upper border of the thyroid cartilage to the hyoid. Its central portion is thicker and stronger, while its lateral portion is much thinner. The thyro-hyoid ligaments are formed by a thickening of the posterior part of the thyro-hyoid membrane, and in the center of this ligament is a small cartilage, the cartilago triticea. The crico-thyroid membrane lies between the upper border of the cricoid and lower border of the thyroid and is thicker in the median part. Laryngotomy is performed in emergency through this membrane, because it is superficial, otherwise never, because of the small space and its close proximity to the vocal cords. The capsular ligaments surround the various articulating surfaces.

The muscles of the larynx proper are the cricothyreoideus, cricoarytaenoideus posticus, cricoarytaenoideus lateralis, thyreoarytaenoideus, interarytaenoideus, aryepiglotticus and thyroepiglotticus. These muscles are all paired except the interarytaenoideus. Many different classifica-

tions of the larynx muscles are given but I rather favor the above classification of H. Lisser of Johns Hopkins. There are many of the surrounding muscles of the neck which I believe have a very important place in certain movements of the voice box, but I am not prepared at this time to make any definite statements, but expect to do so at a later date.

The cricothyroideus arises from the external and anterior surface of the cricoid, and is inserted into the anterior border of the inferior cornua, and outer edge of the lower and posterior half of the border of the thyroid. It draws the thyroid forward and downward, causing the tension of the vocal cords. Some men are of the opinion that the anterior part of the cricoid is elevated, this causing the posterior part to be lowered and in that way causing tension, but I believe this is incorrect.

The cricoarytaenoideus posticus arises from the posterior surface of the cricoid on either side of the median line, and the fibers converge as they pass outward and upward to be inserted into the muscular process of the arytenoid, thus during contraction it separates the vocal processes.

The cricoarytaenoideus lateralis arises from the inner edge and upper lateral border of the cricoid and fibers converge to be inserted into the anterior surface of the muscular process of the arytenoid. During contraction this muscle approximates the vocal processes.

The thyroarytaenoideus arises from the posterior surface of the thyroid, close to the angle of the alæ and is inserted into the greater part of the anterior surface of the arytenoid. This muscle is divided into an internal and external by some men, but personally I have not been able to make the distinction if such be present. Its purpose is to make the vocal cords tense.

The interarytaenoideus is a broad muscle which passes from the outer margin of the posterior surface of one arytenoid to the corresponding part of the other; it approximates the arytenoids. In some cases I found the superficial muscle fibers crossing obliquely in the center, and as a rule more marked on one side than on the other.

The aryepiglotticus is located on the aryepiglottic fold and is a continuation of the oblique fibers of the interarytaenoideus, some fibers being

inserted into the fold and others into the edge of the epiglottis.

The thyreoepiglotticus is composed of a few fibers of the thyroarytaenoideus which turns upward from the outer side of the laryngeal pouch and is inserted into the sides of the epiglottis.

The arterial supply of the larynx is derived from the superior laryngeal, a branch of the superior thyroid, which pierces the thyro-hyoid membrane and anastomoses with its fellow of the opposite side.

The inferior laryngeal, derived from the inferior thyroid, ascends in company with the recurrent laryngeal nerve and enters the larynx just internal to the inferior cornua of the thyroid cartilage.

I have tried to follow the course of these vessels by injecting the various branches of the laryngeal arteries but due to some fault in my technic, was not successful, but expect to be able to show them later.

The veins of the larynx follow the course of the arteries. The lymphatics of the larynx have been carefully studied by D. Crashy Green, and he divides them into the supra-glottic and infra-glottic system. The supraglottic includes the lymphatics of the epiglottis, arytenoids, ventricular bands, ventricles and vocal cords. The only exit from the larynx of this network of lymph channels is through the thyro-hyoid membrane near the superior thyroid artery on each side of the larynx and then to the carotid region. The infraglottic channels are divided into an anterior and posterior system. The anterior division pierces the cricothyroid membrane in the median line above the center of the anterior part of the cricoid cartilage. The posterior division passes through the cricotracheal membrane near the junction of the cartilage and membranous portion of the trachea into a lymphatic system along the course of the recurrent laryngeal nerve.

The nerves. The larynx is innervated by two branches derived from the vagus; the superior and recurrent laryngeal. The superior laryngeal descends by the side of the pharynx, and internal to the internal carotid, and divides into an external and internal laryngeal branch a little above and posterior to the hyoid bone. The external branch descends by the side of the larynx beneath the sterno-thyroid to supply the crico-thy-

roid muscle. The internal branch goes to the opening in the thyro-hyoid membrane through which it passes with the superior laryngeal artery just anterior to the superior cornua of the thyroid cartilages and supplies sensation to the whole of the mucous membrane. The external branch supplies motion to the crico-thyroid muscle.

The recurrent laryngeal is the motor nerve of the larynx and its long course and the region through which it travels subject it to injury. It supplies all the intrinsic muscles of the larynx except the crico-thyroid. According to Risien Russel in the *Royal Society Proceedings*, the fibers going to the abductors are collected together on the inner side, and those for the adductor on the outer side of the nerve trunk. This nerve is contained in the vagus trunk and, therefore, lies in the carotid sheath. It leaves the vagus however in the thorax, and on each side travels a little different course. On the right side this nerve leaves the vagus as it crosses the subclavian artery. It winds behind this artery and lies on the apex of the right lung, where it may become affected in tubercular involvement of the apex; from here it passes upward between the trachea and esophagus to enter the larynx just internal to the inferior cornua of the thyroid. On the left side the recurrent laryngeal nerve is more exposed, as its course is longer and it leaves the vagus where the vagus crosses the arch of the aorta. It winds around the arch and then passes upward and follows the same course as on the right. Semon established a law in reference to all organic lesions of the centres or trunks of the motor nerves, "that the fibers going to the abductor muscles are first involved and that the abductors continue to act for a variable time. In a progressive organic lesion the muscles are effected in the following order, the cricoarytaenoideus posticus, the thyroarytaenoideus and cricoarytaenoideus lateralis. If the lesion is great enough complete paralysis occurs at once; if not the abductors are for a time the only ones affected. When recovery from complete paralysis occurs, the abductors recover first and adductors last. If a lesion of this nerve occurs any place along its tract from the bulbar center to its termination unilateral paralysis occurs on the side of the lesion, but if cortical, and unless bilateral no paralysis will occur.

There is a communicating branch in the larynx between the superior and inferior laryngeal nerves, which can be found just internal to the alae of the thyroid cartilage and a little posterior to its center. According to W. H. Howell and G. C. Huber in the *Journal of Physiology*, 1891, this communicating branch is a sensory branch of the superior laryngeal which is distributed to the trachea and esophagus.

Now that we have our larynx formed we will consider the larynx as a whole.

The larynx is completely formed at birth and increases in size slowly during the first few years of life. There is but little difference in the size of the larynx in a child of four years and twelve years.

The laryngeal cavity is lined by mucous membrane which varies in thickness and laxness in various parts. The greater part is lined by ciliated epithelial cells, while at the true vocal cords the mucous membrane is firmly adherent and covered by stratified epithelium. It is richly supplied with mucous glands except at the vocal cords; especially are these glands numerous at the arythenoids, ventricles and base of the epiglottis.

The position of the larynx in relation to the vertebral column at birth lies between the lower border at the atlas to the middle of the fourth cervical vertebra, while in the adult it lies between the middle of the third cervical to the lower border of the sixth cervical. It must be remembered that because of the loose attachment of the larynx this relation may vary as to the position of the head.

The larynx is placed higher in children and women than in men. Up to the age of puberty the larynx of the male and female is practically the same, but it seems after that time there is a close relationship between the development of the larynx and the sexual organs. In males castrated before puberty, there is but little change in the future development of the larynx and it retains the character of the female larynx.

The larynx of the adult male is about $\frac{1}{3}$ larger than that of the female. The glottic aperture after puberty is about double the dimensions both in length and breadth as compared before puberty.

The length of the larynx in the vertical plane anteriorly at birth is about 20 m.m. posteriorly

from tip of arytenoids about 12 m.m. In adults the anterior vertical plane is between 2 and 2.5 inches posteriorly from tip of arythenoids about 1.5 to 1.75 inches.

The superior aperture of the larynx inclines downward and backward.

In examining the larynx from above downward we first view the epiglottis attached to the base of the tongue, which varies in shape in different individuals, and its function is to close the aperture of the larynx. Many different views are held as to how this is done, but personally, from my research I believe during the act of swallowing the larynx is carried upward and forward under the tongue and the epiglottis pushed back over the aperture.

On both sides of the epiglottis extending backward, downward and inward and uniting posteriorly to the aperture, are two folds of mucous membrane known as the aryteno-epiglottidean folds. These folds are made up of very loose submucous tissue and represent the chief site of swelling in edema of the larynx. The distance between these folds at the widest part is about 23 m.m. Lying within these folds are the cuneiform and the corniculum laryngis cartilages. The cornicula laryngis can be seen as two small swellings at about the junction of the posterior part of these folds, but I was unable to locate the cuneiform in any of the living subjects by inspection. On either side of the ary-epiglottidean folds there is a deep recess which lies between these folds and the alæ of the thyroid cartilage on the other side; it measures about 18 to 20 m.m. deep in the adult. It is in this pocket that foreign bodies often lodge. Passing downward into the larynx at the anterior part a slight bulging backward from the median line represents the cushion of the epiglottis.

As we descend into the larynx its lumen becomes smaller and we come upon the false vocal cords, which lie on a horizontal plane on either side; they are about 20 m.m. from the upper surface of the ary-epiglottidean folds and meet in the median line anteriorly, about 6 m.m. below the border of the thyroid notch. Posteriorly they seem to fade away into the lateral wall. They are made up of mucous membrane folds.

Below these false cords there are deep slit-like pockets which extend externally into the tissues

in a semi-lunar shape and are known as the sack or ventricle of Morgagni. Deep in, these pouches seem to extend upward. This ventricle measures about 15 m.m. antero-posteriorly. The object of these ventricles is supposed to allow free vibration of the vocal cords, but personally I am not of this belief.

Below this ventricle, and in fact forming its floor are two ivory white elastic bands, extending from the angle of the thyroid cartilage in front, 2-4 m.m. below the false cords, and about 8-10 m.m. below the thyroid notch, which seems to interlace anteriorly one with the other. Extending posteriorly they are attached to the vocal process and anterior surface of the arytenoid.

In the development of the cord J. Earnes Frazer of King's College, says, "Each cord is preceded by the appearance of a 'chordal nodule,' whose subsequent atrophy leaves it attached to the thyroid junction."

They are wedge shape with their free border looking inward and upward. They measure 22 to 24 m.m. long and 5-6 m.m. wide. At birth they measure 4-6 m.m. long.

The space between the cords and inner sides of the arytenoids is known as the rima glottidis or chink of the glottis. The area between the vocal cords proper is called the glottis vocalis, while that between the arytenoids the glottis respiratoria. The glottis vocalis measures 10 to 12 m.m., while the glottis respiratoria about 12 to 15 m.m. in length. The shape of the chink is triangular with its apex at the thyroid angle.

While suspending cases with the Killian suspension device, I measured the width of the glottis, at its widest part. In adult males it measured from 8 to 10 m.m. In children 8 to 14 years of age during anesthesia from 4 to 6 m.m.; the length of the cord was 12-14 m.m. It was difficult to get the exact measurements as during each expiratory and inspiratory movement the cords would contract and relax.

The vocal processes of the arytenoids are not attached at the acute angle of the cords but about 3 m.m. below.

All this area above the vocal cords to the superior aperture is known as the supra-rimal portion.

Below the vocal cords there is a gradual reced-

ing of the tissues to the inferior border of the cricoid where the space becomes circular and marks the beginning of the trachea. This area represents the infra-rimal portion.

I have to thank Dr. Hillis and Dr. Ruppert for many of my anatomical specimens.

THE RECOGNITION OF CHRONICALLY INFECTED FAUCIAL TONSILS.*

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The important role which chronic foci of infection take in the etiology of systemic diseases is becoming more and more recognized. It is now generally accepted that the arthritides, cardio-vascular degenerations, chronic Bright's disease, as well as various forms of neuritis, including neuritis of the optic, as well as of the 8th nerve, frequently owe their origin to chronic, usually latent, foci of infection. There are a number of other diseases of obscure origin where chronic infection is now being suspected as a possible cause. Clinical experience has shown that the faucial tonsils are apparently the most frequent seat of these chronic foci producing systemic infection. This fact is not surprising when we remember that the faucial tonsils are more frequently involved in severe, acute inflammatory reactions than any other structure in the body, and that the structure of the tonsils, with their deep pockets extending through to the capsule, is such as to favor the retention of foci of infection. The recognition of chronically infected faucial tonsils becomes, therefore, a very important problem.

Every laryngologist whose daily routine brings with it the examination of the fauces in a large number of individuals, is likely sooner or later to reach conclusions more or less positive as to what constitutes clinical evidence of a chronically diseased tonsil. The laryngologist who has not kept in close touch with the progress which is being made by the internist in the study of the etiology of systemic infections is likely to discover sooner or later that in relying too closely on the results of inspection of the tonsils he has overlooked many cases of chronically infected ton-

sils which were causing the most serious systemic disease. A large experience in recent years in the removal of faucial tonsils from patients suffering from systemic infection, has impressed on me certain facts as regards the clinical evidence of chronically infected tonsils. In the first place I have come to recognize certain conditions as evidence more or less conclusive that the faucial tonsils contain foci which are producing the systemic infection. In the second place I have learned to recognize other conditions which should lead one to suspect the tonsils as a probable seat of foci capable of producing systemic infection. In the third place, I have learned to recognize the fact that a tonsil may contain foci which are causing the most serious systemic infection, where a careful examination may fail to discover anything which would throw suspicion on these structures, and where the infection in the tonsil can be disclosed only after the tonsils are removed.

In the recognition of a tonsil causing systemic infection the history is often of first importance. When the history shows, as it so often does, that the systemic infection developed simultaneously with, or immediately following an acute tonsillitis, there is little room for doubt that the chronic infection is being kept up because of latent foci of infection retained in the depth of the tonsils. Very often the patient gives a history of recurring attacks of tonsillitis or a history of quinsy sore throat in previous years, but no acute attack for several years preceding the onset of the systemic disease. The absence of an acute attack of sore throat at the time when the systemic disease developed, in no way excludes the tonsils as the possible focus for the trouble. The history of attacks of tonsillitis in previous years should always throw suspicion on the tonsils as the possible seat of chronic latent foci, and when the systemic condition is serious enough to justify the procedure, the faucial tonsils should be enucleated unless, of course, foci of infection can be detected elsewhere. Very often there is lacking any history of a condition which is ordinarily recognized as acute tonsillitis, but the patient will state that for weeks or even months preceding the onset of the systemic trouble he was conscious of a soreness and fullness in the pharynx. The sensation may be no different from that which

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is associated with a swelling of the lateral bands of the pharynx, which often persists for weeks after a severe head cold. In such cases an inspection of the pharynx will usually show distinctly when the trouble is located in the tonsils, for these structures will appear more or less congested, often with a spongy appearance produced by a slight edema over the surface of the tonsil. On the other hand it sometimes happens that a patient suffering, for example, from an arthritis, will state that he has never had tonsillitis or sore throat and yet an examination of the tonsils will disclose the presence of pus which can be expressed from the tonsil.

Next in importance to the history of the case in this problem of determining the relation between systemic infection and disease of the faucial tonsils, is the examination of the tonsil itself. In most of the cases where the faucial tonsils are the seat of foci causing systemic disease, an examination of the tonsils will disclose positive evidence of chronic infection. The tonsil may or may not be enlarged. When it is distinctly enlarged the evidence of chronic infection is perhaps more readily recognized than when the tonsil is shrunken. The presence of an enlarged tonsil is, however, not in itself a positive evidence of chronic infection, although an enlarged tonsil is frequently the seat of chronic infection. The most characteristic change in a chronically infected tonsil is the presence of a distinct congestion on its surface, often extending over the fold from the anterior pillar, which so often partially covers such tonsils. Very often one discovers a large flat tonsil which does not protrude into the pharynx, the surface of which presents a granular appearance. The condition is one which is produced by an hypertrophy of the connective tissue stroma, which has in a measure obliterated the parynchema and thus brought about a distinct shrinking of the tonsil. Pressure applied to the base of such a tonsil will, as a rule, express droplets of pus from several points on the surface of the tonsil. Occasionally one discovers near the surface of a tonsil a pocket of pus varying in size from a pinhead to that of a hazel nut. The condition is recognized by the yellow color of the pus showing through the thin covering. In some of the larger

pockets the pus can be expressed from a neighboring crypt by applying pressure. Not infrequently in such cases the patient does not recall ever having had an attack of tonsillitis and yet I have no doubt the process began as an acute infection in the tonsil. Encysted pockets of pus are found much more frequently in the depth of the tonsil than they are near the surface. The reason of this is obvious: an abscess developing near the surface is much more likely to discharge spontaneously; furthermore, an infection in the depths of the tonsil is much more likely to form into an abscess than when the infection involves the surface of the tonsil. It has not been an uncommon experience for me to discover, either during the operation or after the tonsil has been removed, pockets of pus in the depth of the tonsil in cases where there has been no history of tonsillitis and where a careful examination of the tonsils had failed to detect anything that suggested the presence of a chronic infection. The operation was done on the advice of the internist because the patient was suffering from a serious systemic infection and a careful search had failed to discover any other probable focus.

The conclusions to which these experiences have lead me may be expressed as follows:

1. When a patient has a systemic infection which owes its origin to foci of infection in the faucial tonsils, the history of attacks of tonsillitis often points more or less clearly to the tonsils as the cause of the trouble.
2. Tonsils the seat of chronic infection can usually be recognized by a careful examination.
3. Chronic infection in the tonsil can often be detected in cases where there has been no history of acute tonsillitis.
4. Chronic foci of infection may be present in the depth of the tonsil when neither the history of attacks of acute tonsillitis or an examination of the tonsil itself discloses any evidence of the trouble.
5. In a case suffering from a chronic systemic infection, the faucial tonsil should always be under suspicion as the most frequent source of the trouble, and in cases where no other foci can be detected one should not hesitate to consider the removal of the tonsil provided the systemic infection is severe enough to warrant the opera-

tion, even in cases where the history of the patient and the examination of the tonsil disclose no positive evidence of the tonsillar origin of the trouble.

THE IMPORTANCE OF THE EARLY TREATMENT OF STRABISMUS IN INFANTS.

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It is a common experience for oculists to be consulted in regard to cross-eyed children from seven to fourteen years of age or older, whose unfortunate deformity is justified by their parents with the statement that they had been advised by their family physician to wait and see if they would not outgrow it, or that they were then too young to be operated on, that it was a simple operation and could easily be done when they were older. Worth mentions a similar condition in England and Roemer in his recent work condemns severely the general practitioners on the continent for giving such advice. These children come with one eye practically blind, and all that can be hoped for from a successful operation is an improvement in appearance. The time for retaining by training the vision in the squinting eye has long gone by. A true cure of strabismus consists in the maintainance of binocular vision with fairly good vision in each eye.

Most oculists, I believe, agree with Worth that "The essential cause of every case of comitant convergent or divergent squint is the result of a defect in the fusion faculty." Dr. Edward Jackson concisely sums up the condition relating to the fusion faculty as follows: "The fusion faculty, which controls the ocular movements in the interest of binocular vision, is one of the most delicate and exact, yet one of the most constant and rigid co-ordinations that the human being acquires. That it is not commonly possessed at birth seems to be established by the agreement of all careful observers. That it is normally developed in early childhood is equally certain. Persistent intelligent efforts have failed to give any indication of its acquirement in adult life. I believe it is well established generally before the age of two years, and practically always before six. The earlier age is that of normal de-

velopment; the latter is the limit of delayed or obstructed development, beyond which its appearance or development is impossible."

With the impossibility of developing or training a defective fusion faculty after six years of age; also with the rapid development of amblyopia in the squinting eye from the lack of use it becomes imperative to begin the energetic treatment of squint as soon as it manifests itself.

This consists in the thorough examination of the patient, history, kind of squint, degree, power of fixation in the squinting eye, estimating the vision of each eye if possible, then ordering for constant wear lenses correcting the refractive error obtained by retinoscopy while thoroughly under atropine, possibly for a time the continuous occlusion of the fixing eye by a carefully applied bandage, later atropine in the fixing eye, remembering, however, that the originally fixing eye may become the squinting eye, so that the treatment must be carefully watched in order that each eye receives the necessary visual training. When the child is old enough, training of the fusion center by Worth's amblyscope, which cannot be done to much advantage as a rule before three years of age.

The onset of most cases of squint occur at about the third year, some before and some later. Worth reports the case of a child at five months, treated with glasses, occlusion bandage and atropine, cured in a little over two years. The late Dr. Baker of Cleveland stated that glasses may be fitted at the end of the first year. I have frequently ordered glasses for infants under two years of age. Any child old enough to squint is old enough to wear glasses. The parents of these children often volunteer the information that they are much less irritable and are more easily governed since wearing the glasses. Not only do they wear them with comfort, but without any danger of injury to their eyes from the glasses. I have yet to see the record of a single case of serious injury to the eye from the glasses alone; that is, where there has been a severe injury to the eye of a person wearing glasses, it would have been equally severe if he had not been wearing them. The frames do not bend up or break and penetrate the eyes, neither are the eyes penetrated by broken lenses.

The amblyopia in the squinting eye is due to

neglect or inefficient treatment, rather than to a congenital condition. A few children may be born with an amblyopic eye, but the percentage is very low. In very young children the squinting eye deteriorates very rapidly, in a few months; in older children not quite so rapidly. Wendell Reber makes the statement that, "Improvement may be expected in the amblyopic eye in 50 or 60 per cent of cases by properly adjusted glasses. If taken before the fifth year there seems no reason why the strabismus should not be cured by non-operative methods in seventy per cent of cases. The results of non-operative treatment in children, if adhered to with any persistency, are infinitely better than any 'scissors' statistics thus far offered." Worth gives the percentage of success a little higher.

For the unsuccessful non-operative cases we have the various operative procedures. The so-called spontaneous cure of squint is like angels' visits, few and far between, and then only come to the oculist second hand, never seen, but heard of as wonderful natural cures. By the surgical methods we can only hope to improve the faulty position of the eye. The temporary results of the various operations, tenotomy, advancement, tendon tucking, etc., by many methods are all fairly satisfactory and some permanent, but also in after years many of these eyes return to their former position or wander off in the opposite direction, making the deformity worse, if possible, than it originally was. Of course these cases can be operated on again with similar results. The operation if well done is not a simple one, requiring excellent judgment and careful execution.

I appreciate that this subject may not be pertinent in a society of oculists, but any particular practice that concerns our relations with the general practitioner should be agitated in our own organizations. The object of this paper is to bring this question before the general practitioner. It is not expected that any man who is engaged in general practice should be able to properly treat a strabismic patient, but he should know that he cannot. He sees these unfortunates first and it is his duty to send them at once to an oculist, not an optician, and not to advise a watchful waiting policy. By advising them to wait to see if they will grow out of it or let it go and operate later, he is not only treating the patient

but in the majority of cases condemning the child to a one-eyed existence, from the utility viewpoint, for the rest of its natural life. It is just as good practice to advise an incipient tubercular patient, after diagnosis has been made, to wait and see if he will not recover, as it is to advise the parents of a cross-eyed infant to wait and see if he will not outgrow it. These cases are very difficult to handle and require a great deal of patience on the part of the oculist and the parents must be in sympathy and it makes it much easier for all concerned if we have the cooperation of the family physician.

DISCUSSION.

Dr. J. Sheldon Clark, Freeport: Dr. Fringer asked me to make some remarks about this paper. I think it is quite apropos. Although this is the Eye, Ear, Nose and Throat Section, yet the transactions of this meeting will be read by the general practitioner and it is he who can do most for these patients of ours, many of whom we do not see until after they have reached the age of six or eight years. We see these children at this age now mainly because of the activities of the school nurse, especially in the larger towns and cities. I know that in my city the school nurse sends most of these cases of strabismus to me. We hear now a great deal in regard to the conservation of vision, and we have the Illinois Society for the Conservation of Vision, which I think is an excellent organization. Then there are such meetings as we are holding in Chicago. For instance, the other evening we had a joint meeting of the Chicago Ophthalmological Society and the Chicago Medical Society. Subjects touching upon the cause of blindness were presented by men at this meeting, and much will come from it. This subject of squint is one that should be more thought of by the general practitioner. A mother would be more awake to the need of attention if she knew that her squinting child would lose practically 50 per cent. of his vision, and she would not consent to have that child go till nine or ten years old, did she know the outcome. Therefore, we must educate not only the general practitioner, but the public in general.

In regard to treatment, I think Dr. Faith has touched on that very excellently and I will not say anything about that part of the subject. I might say that watchful waiting in time of peace or watchful expectancy in many conditions would be all right, but in this question of squint we must do what we are to do early, before the fusion centers develop. I think the papers are both very timely.

Dr. Oliver Tydings, Chicago: *Mr. Chairman and Gentlemen.* I can only speak in words of commendation of Dr. Faith's treatment of squint. It is excellent. It is absolutely the right line. I heartily endorse it. But there is another feature of the thing in which I do not agree, and that is with regard to

the fusion centers being responsible for the various forms of squint. In the first place, I would ask at what age can be developed the fusion sense? I have a patient now, up in the thirties—I do not know the exact age, but somewhere in the thirties—who in early life suffered from convergent squint and somebody cut both internal recti muscles and then she was worse off. I did an advancement on both. That patient had had very low vision for years in one eye. She cannot control it yet, but after a few day's practice with the amblyoscope she was enabled to make these pictures, although her vision even at two feet in defective eye is about a Snellen 25.15 line. She was unable to make these pictures with that instrument at first. Her fusion sense was latent. On first trial, she could not find them, and it was only on being importuned by her husband and myself to search for these things that she could accomplish it. I have seen them at ten years develop that fusion sense. I believe the fusion sense to be something entirely beyond the control of the will. I believe squint is due to muscular defects and to no other cause for the simple fact that we find the various degrees of hypermetropia absolutely parallel, while we find cases of loss of vision in one eye in which we have absolute parallelism, and that loss of control of fusion dates from childhood. What is it that keeps those eyes parallel? It is not fusion sense, because visual acuity is lost in one eye. What is the cause of it? It is because of the fact that in some of those eyes the musculature is all right and in some it is at fault. I believe that is the reason of it.

Dr. Emory Hill, Chicago: I think it is a very interesting thing that squint operations are becoming comparatively rare. I believe this is one step of progress in ophthalmology that we have to be proud of. I think we have come to the time when it is a disgrace to have to do many squint operations. Practically all cases are based upon errors of refraction and can be cured by glasses and exercises, as has been suggested. The small minority of cases that cannot be cured by such means can be cured by slighter operative measures than those formerly used. I think it is a very practical thing for us and for our patients that we explain carefully to parents what we are doing. They are disappointed by the lack of quick results; they are disappointed because the child squints again when he takes off his glasses. If we will explain the nature of the thing, the fact that refraction is at the basis of it, the fact that glasses must always be worn, that results will be slow and that operation will probably be avoided, and that if it is not eventually avoided it will be safer and more simple when it is done later, we shall have better cooperation. I think that nothing we have heard today is of quite so much importance as these papers of Dr. Faith and Dr. Fringer.

Dr. W. R. Fringer, Rockford, closing: I am very glad to have heard Dr. Faith's paper and that it preceded mine. He has explained the method of treatment in detail, which is very essential. I did not care

to go into that phase of the subject, but wished to lay particular stress on the importance of the early treatment. It has been my experience, and I believe it has been the experience of all of you in handling these cases, that we do not get them early enough. The general practitioner does not realize the importance of the early development of the squinting eye.

I agree with Dr. Hill that it is very essential to explain to the parents the method of this treatment and its object. We should see these patients frequently and it is necessary to talk and play with them so as to keep them interested. It is a tedious process, but will yield results if kept up.

As I stated in my paper, I believe that most oculists agree with Worth in his theory of the cause of strabismus. Some, however, do not, but I have no desire to enter into a long drawn out discussion on this point. Worth has certainly given us the most systematic and satisfactory method of handling squint, whether we accept his theory as to the cause or not.

THE PROGNOSIS IN SQUINT.*

THOMAS FAITH, M. D.,

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In discussing the subject of squint with special reference to its prognosis one is, of course, aware of the fact that the prognosis in this condition as in most other conditions depends to some extent upon both the diagnosis and the treatment which is followed; but when I speak of squint in this paper I wish to include only the cases of the concomitant convergent type, and when I speak of the prognosis in this class of cases I mean to take into consideration not the outcome as to parallelism alone, but the outcome in a broader sense. In fact, there are three sides to this subject, each of which is of as much importance as the individual sides of any other triangle; and unless we take all three into consideration in the study of our cases, ideal results can seldom be achieved.

We should then in the study of our squint cases always take into consideration these three things in the order of their importance. First, the prognosis as to visual acuity in the squinting eye; second, the prognosis as to binocular vision, and third, the prognosis as to parallelism; and I believe we should always attempt to obtain results in this order in every case, i. e., striving to obtain all three (improved vision in the squinting eye, binocular vision, and parallelism) and only when

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it is impossible to obtain the first and second should we be contented with the third alone, for if we can obtain improved vision and binocular vision, parallelism will take care of itself.

Too many of us have in the past, and many at the present time seem to be interested alone in the cosmetic result, i. e., in obtaining parallelism, and this is in all probability due to the fact that many cases have obtained apparent parallelism even though improvement in visual acuity and binocular vision have been entirely disregarded and except for the correction of the patient's refraction nothing has been attempted.

The ophthalmological world has accepted Mr. Claude Worth's explanation, i. e., the loss of the fusion faculty or its imperfect development as being the principal cause of concomitant squint, and still at the present time, hundreds of oculists the world over are treating cases of squint the same as in years gone by, viz., refraction under cycloplegic prescribing full correction and waiting for results. If no results as to parallelism are obtained after one to three years operation is advised. If results are obtained, that is, results as to parallelism, the case is dismissed. Most of these cases are never tested to see if they have any degree of binocular vision, and parallelism is taken to mean a cure.

It is true that much has been written to educate the general physician to send these cases to the ophthalmologist early, but the ophthalmologist has been at fault in not studying the cases more carefully and in not taking more time with them. I am sure that much can be accomplished if we will be patient and painstaking with these cases; if we will strive to educate the squinting eye to improved vision and make proper use of the amblyoscope in fusion training.

I am not trying to claim that every case can be made to obtain the ideal result, but with study I believe we can separate the cases which will improve from those which will not improve, and also we can more intelligently understand the reasons for our failures.

The proper treatment of these cases is of the utmost importance and should consist of, first, lessening accommodative efforts; second, arousing and stimulating the instinct for precise vision, and third, arousing and cultivating the desire for binocular vision.

The first step is accomplished by optical correction of the refraction under cycloplegic (atropin) and the prescribing of full or almost full correction, and as we are practically always dependent on retinoscopy for this, the test should be repeated a number of times to insure accuracy. After retinoscopy the visual acuity should be determined with the correction on for record. For this purpose the Worth visual ball test is probably as good as any other, though it has the disadvantage of being inaccurate as compared with the Snellen charts. After suitable glasses have been adjusted and the amount of vision and the degree of squint have been recorded, visual training of the squinting eye should be immediately begun, first, by continuing the atropin in the fixing eye and allowing the squinting eye to recover from the mydriatic, thus compelling the squinter to be used for all near objects; but this is by no means sufficient in most cases and should be reinforced by, second, compelling the squinting eye to do all the work for a considerable length of time (several days or even weeks). If a very small child he or she may be taken to the zoo or through a toy shop with both eyes uncovered and thus be allowed to become familiar with the toys or animals, as the case may be, then later he may be taken again and again, but always with the fixing eye entirely excluded. He may be shown picture cards, blocks and favorite toys or sweetmeats, which are to be a reward for having the fixing eye covered; and he is to be required to hunt for these same articles, making a sort of game out of the exercises, but always having the squinting eye alone uncovered; then as the child learns to concentrate he may be taught to pick out individual objects in large pictures or posters, the interest being kept up by always keeping the game idea in his mind.

From these exercises we may progress to the use of the stereoscope, using it not as a stereoscope, but making use of stereoscope pictures and excluding the fixing eye by covering one glass with black paper by pasting it against the side next the face, making a simple magnifier out of the instrument, and requiring the child to name the objects seen in the picture, the parent or nurse adding various marks and simple figures to the original from time to time and thus stimu-

lating the patient to constantly hunt for new objects or marks on the pictures. Gradually the child is taught to observe smaller objects and more complex pictures, and as he progresses he may be taught to make some new marks for himself, always using the squinting eye alone. Then when once the faulty eye begins to improve in vision the amblyoscope may be taken up and fusion training attempted, and later he may be taught to read and draw while using the squinting eye.

The amblyoscope has been most satisfactory to me in the cases in which I have used visual training for many months first. One's ingenuity is sorely tried sometimes in order to keep these little ones interested, but there are many things which come to one's mind in the management of these cases, and many original plans can be worked out.

If, after all these devices have been tried and the progress has not been satisfactory as to improvement in vision, the correcting lens may be removed from in front of the fixing eye, and a weaker lens or a plano may be substituted, meanwhile keeping the fixing eye under atropin and in this way aiding in throwing not only the near work, but practically all the work on the squinting eye where any degree of ametropia exists.

This latter procedure of removing or reducing the correction in the fixing eye has been the most satisfactory expedient I have ever tried in stubborn cases, and in a number of cases I have been able to whip the faulty eye into line by this procedure after all other attempts had failed.

When once the amblyopic eye has gained a fair degree of vision and is gaining steadily the fixing eye may be given a part or sometimes the full correction again, and fusion training with the amblyoscope may be begun, but until there has been a noticeable improvement in vision obtained it is usually time wasted in trying amblyoscopic exercises.

Some practitioners have expressed their dissatisfaction at having the amblyopia transferred from the squinting to the fixing eye from fear of having made a bad condition worse; but, personally, I have come to look upon this phenomena as a good omen, and I believe that whenever this

takes place success is assured if we will but persist in our efforts.

When once the amblyoscopic exercises have become satisfactory the stereoscope should be brought into use for home training, but care should be exercised in directing the mother or nurse as to the proper use of the instrument.

Contrary to what Mr. Worth says it is quite satisfactory to put the amblyoscope in the hands of the parents in cases which do not progress satisfactorily with office treatments alone, and I am borne out in this opinion by my friends Dr. Oliver Tydings and Dr. Lee Schwarz, both of Chicago, who have carried this plan into practice a number of times.

Again, I must disagree with Mr. Worth as to the value of the stereoscope, which with the Kroll charts, has sometimes given me very valuable assistance.

The question which concerns us most in this paper is what cases will and what cases will not obtain ideal results, and you have already seen what I mean by ideal results (viz., normal or nearly normal vision in the squinting eye, binocular single vision, and parallelism of the visual axis). Mr. Worth says, "As a rule it is only possible to get a perfect result in a case in which efficient treatment is commenced early, but unfortunately one sees a very large proportion of cases for the first time, after years of neglect or perhaps inadequate or even harmful treatment." The one thing which he considers particularly harmful treatment is the prolonged use of atropin in both eyes either with or without wearing a correction. To me it seems that the only harm that can come from this procedure is due to the loss of time during which the habit of suppression becomes more fixed from lack of visual training, as neither visual training nor fusion training can be satisfactorily carried out under these conditions. I have formed this opinion because of the fact that I have succeeded in getting ideal results in two cases that had been under atropin for a period of over a year and both of these cases were over five years of age when the treatment of visual training and fusion training were begun.

It is safe to say that the majority of concomitant convergent squint cases that are not essentially alternating and which come before four years

of age can be successfully managed if there is no limitation or impairment of outward motion. The cases which come between four and six years of age, which have power of central fixation and which have good outward motion can usually be treated successfully, although the length of time required is much greater than in the younger cases.

Worth thinks that it is seldom worth while to attempt fusion training after six, but I have personally succeeded in several instances after that age, but it has only been in cases in which I have obtained a marked increase in the vision of the amblyopic eye by visual training. If no improvement has occurred after six months of constant visual training it is probably useless to attempt to get the ideal result. In this connection I wish to say that one should not get discouraged in cases in which the improvement in visual acuity has progressed steadily to a certain point and then come to an apparent standstill, for with perseverance these cases will often improve rapidly after a rather prolonged period of apparent inactivity, if once they have shown improvement.

The cases which have been the least successful in my hands have been those which have persisted in having eccentric fixation in the squinting eye. It seems in these cases, and I have had one of them on hand for four years, that no amount of visual training and training with the amblyoscope will improve their visual acuity or enable them to obtain central fixation.

In making up one's mind as to the probable outcome of a case of squint the fact must not be lost sight of that some of the cases of concomitant squint which come under our observation were originally paralytic cases which have been transformed into concomitant squint, and in these cases even though the vision may be perfect in either eye, it is many times impossible to get either binocular vision or parallelism.

Another class of cases which usually defies all our efforts, is the case of anisometropia in which the difference in refraction in the two eyes amounts to more than three or four diopters. This, of course, by making fusion more difficult makes the training less successful, and if the squinting eye is a myopic eye the ideal result is practically never obtained.

Cases of essentially alternating squint never obtain the ideal result though the cases of accidentally alternating squint will practically always succeed if the case is managed properly.

We must not, however, lose sight of the fact that after a patient has been neglected or maltreated for a number of years the case becomes not one of incurable muscular defect, but one of incurable cerebral defect.

DUODENAL SEMI-STASIS, A PRINCIPAL FACTOR IN AUTO-INTOXICATION, CLINICAL FINDINGS, ETIOLOGY AND DIAGNOSIS.*

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In presenting this subject to you, I am doing so after having followed up a number of patients that have come under my observation, both at the bed-side and in my office practice.

After my first few cases of this character I concluded that these patients had something wrong with their upper bowel, and reviewing the literature I had access to I was unable to satisfy myself as to the diagnosis. As time has elapsed and as my experience has increased in this character of cases, I am satisfied the duodenum is at fault, and I am going to give you a synopsis of the clinical or general findings of this class of patients as I have observed them.

Symptoms. These patients usually give a history of previous attacks of indigestion crisis, at intervals of a few weeks to six months or longer.

These attacks are usually preceded several days by symptoms complex, fatigue, languid or lazy feeling with variance in headache, frequently vertigo and often a tired lagrippelike feeling on rising in the morning, which feeling usually lessens as the day progresses according to the severity of intoxication. Hot feverlike flashes are experienced, and a few times one-half to a degree of fever is present sometime during the day. The patients state they often have the rheumatism, complaining of local or general aches and frequently I have encountered neuralgias that vary in severity; impaired if not lost appetite, although eating three large meals daily is one of

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the usual findings, a stomach unrest and yet not a hunger.

These conditions last from one to six or more days. Two to six hours after a certain meal is eaten a crisis attack of nausea, vomiting of undigested foods, with cold clammy feeling, pale skin, shallow breathing and a thread-like pulse is the picture, along with severe gastric pain if pylorospasm is present. In that case, unless the patient has vomited, there will be marked gaseous distention of the stomach and the heart embarrassment will be in accordance with the severity of this dilatation. There is usually severe pain in the back somewhere along the spinal column.

With this state of affairs and marked dilatation of the stomach, death seems imminent, but should the pylorospasm be overcome and the gas pass downward, spontaneously or by effect of sedative given hypodermically or by manipulation of a thoracic spine, or if the stomach be emptied by emesis or lavage, the usual outcome, a more favorable picture of the patient soon ensues. After the stomach is emptied and one feels there should be a very small amount of gas remaining, percussion over the stomach is often markedly tympanic and especially that area high up in the left hypochondriac region referred to presently.

The picture given is the severest type of crisis. Many cases have milder crises, but practically all experience a time when food is repulsive to them for twenty-four hours or longer and bowel actions from cathartics are nearly impossible for twenty-four to forty-eight hours. All cases have the particular tympanites that I will refer to presently, along with epigastric distress, respiratory and cardiac embarrassment; these symptoms varying in accordance with the severity of the crisis.

After a few days of practically no food, and a moderate amount of cathartics with rest, usually in bed, these cases are up and out again, to sooner or later undergo another so-termed crisis.

In the intervals between the crises, cases that have marked stomach derangements complain of a full feeling after eating, frequently very distressing and usually lasting several hours. There is marked variance in the physical findings as well as the symptoms where marked stomach de-

range is encountered. There may be dilatation from gaseous formation or atony of stomach muscle; seldom any pylorospasm, except at the crisis. When there is delayed digestion in the stomach the tongue is usually posteriorly coated continuously.

Two to four, sometimes six hours after eating, there is yet a distress in the region of the stomach, often explained as a fullness with depression of breathing; often an uneasiness felt in cardiac region and palpitation at this time. A feeling of constriction, tightness or discomfort about the neck is complained of at intervals. In severe cases the patient is seldom conscious of any peristaltic movement except when an active cathartic is taken. Constipation is the usual finding, however I have met with a few lighter forms of intoxication which have had evacuations daily, and a few cases which have had diarrhea, and I could offer an explanation in these cases should I have the time.

The more extreme the intoxication, the more marked the nerve involvement as a general rule. However, I have had patients with a large degree of non-eliminated toxemia giving a typical picture "in findings" of this complaint, who have very little noticeable nerve disturbance. Many patients complain of an unusual alertness of the brain, particularly on retiring. They state they know of no reason why they lay hours night after night unable to sleep. They can not at these times concentrate their minds to think of anything any length of time. Invariably the mind will drift from one to many thoughts while they try to retain their mind on one thing. When at last they do go to sleep they dream most of the time, and when morning comes they get up, if able, and go about their work having had only a few hours of unsatisfactory sleep and rest. Many of this class of patients and those who are more fortunate in being able to sleep will admit, when questioned, that they go to sleep every night with a few and frequently many muscles of their body in a tension or state of contraction, this condition existing for hours. In the early hours of the morning they awake with severe pains in the muscles of their neck, back, arms, jaws or legs according to the muscles that have been in state of contraction. This condition necessitates the

waste of much unnecessary energy and is due to hypertonus of the nerves caused by toxic irritants.

Many of these patients state they are so nervous they know not what to do with themselves, with an uneasy fear-like calamity, or some unexplainable feeling from their waist line upwards. These cases are most all called chronics and usually diagnosed biliousness, neurasthenia or nervousness and have been the rounds. The majority of these cases if of long standing are acutely self-conscious; they watch the excreta and if any slight deviation from regularity is noted, become alarmed. They take their pulse, listen to their heart at night, examine their tongue daily, etc., and are very sensitive, taking exceptions frequently to sayings from their friends and enlarging on their imaginations. They are irritable or of the other extreme, unusually quiet and melancholic, secretly worrying about themselves.

Many of them when questioned direct, and a few from their own free will, will admit they have been fearing insanity. The depressed or embarrassed feeling in respiration, is usually associated with marked nerve irritability. In the severe types of intoxication pain in different parts of the body is complained of and frequently local nerves are attacked producing local discomfort to the area supplied in the way of soreness, tenderness, acute pain, etc.

Vision is usually found to be impaired; pupil accommodation and the response to light are seldom normal; the knee reflexes are present and sometimes exaggerated; the tongue is often coated posteriorly, and the breath is disagreeable.

Chest findings are usually negative except the cardiac region. The systolic beat is often exaggerated and prolonged. There is frequently a variance in rhythm and regularity of the heart. In severe cases the heart action is quick and tensionlike in sound.

Stomach findings in cases of long standing are usually atonic, with tenderness and splash sounds after taking water; the border of the liver may be palpable and likewise the head of the pancreas, according to the severity of the semi-stasis of the duodenum and non-elimination of the toxic elements of the system and complications.

Cases of short duration seldom have findings from physical examinations of the stomach, al-

though the tympanites and symptoms below referred to are nearly always present in greater or less degree.

Percussion over the upper abdomen reveals tympanites over the left upper area frequently causing the lower border of the left lung to sound tympanitic. It is usually very difficult to locate the outer border of the stomach, unless inflated mechanically, at which time this difficulty is overcome and one can be convinced that the tympanites above referred to is in the upper gut and not the stomach or colon, but should the colon yet be questioned a high soap-suds enema or abdominal massage will eliminate it, and if the tympanites is yet present we must conclude it is not in the colon. This gaseous distension invariably produces an epigastric fullness with more or less distress.

I give no little consideration to the quantitative analysis of the urine and stomach tests. The twenty-four-hour output of urine is usually insufficient and a sample of this saving shows insufficient amounts of solids being eliminated in twenty-four hours; specific gravity fluctuates according to the amount of urine excreted in twenty-four hours.

The degrees of acidity are usually from twenty to sixty too high. Indican is nearly always present in excess, taking one to six and even eight drops of the solution of potassium chlorate to neutralize the indican in 10 c.c. of urine. Albumin and sugar are frequently found in traces, in the cases termed highly toxic. Urea is generally deficient in output with chlorides in excess; ammonia is usually in proportion to urea. I only mention these findings because I feel they are of importance in making a diagnosis.

Etiology. The prime factors in the cause of this trouble are: stomach derangement, continued over-eating, and constipation.

The stomach derangement is secondary to the continued over-grind at the daily routine, worry, excessive excitement, irregular hours and meals, with over-eating, and neglect of desire to stool. Constipation might be thought of as the prime factor, but I do not think so, as the bowel is working all right at the time the stomach disturbance is first noticed, but the patient simply neglects nature's call for action.

Nerve irritability develops and hyper-acidity is encountered; hence, an excessive appetite. We now have the state of continued over-eating with a pronounced case of hyper-chlorhydria with motor power yet normal. The stomach empties itself in the normal time and continues to secrete hydrochloric acid. This continued hydrochloric acid secretion tends to highly acidify the duodenum an indefinite distance into the intestine below as well as the pyloric end of the stomach.

This state of affairs along with feeding the engine too much fuel soon allows ashes to collect and lowers the tone of the fire; the grates become impaired, oxygen is in demand, the general system becomes ill-nourished, a loss of nerve tone develops and gradually becomes more marked. The duodenal secretions now are no doubt highly acid in reaction and this condition, with the failure of the stomach to properly prepare the food before emptying it into the bowel, results in a lowered tone of the bowel muscle and prolonged intervals of peristaltic waves. The food and other elements are delayed in moving downward and thus putrefaction is encouraged by the delayed digestion. By semi-stasis I desire you to understand me to mean a physiological abnormality as well as a loss in tone of the peristaltic muscle movement and in some instances marked distention, gaseous and fecal, of the duodenum and possibly an extension of this condition to an indefinite distance along the upper intestinal tract. I feel reasonably certain that conditions of this character exist, causing delayed emptying of the stomach and terminating in an acute attack I have termed indigestive crisis.

The third factor, constipation, now presents itself and is the principal factor in causing the toxemia by absorption from the intestinal tract, and especially the upper tract. The entire intestinal tract suffers in greater or less degree a deficiency of bowel tone.

Just how, where and why toxemia elements are produced and absorbed, I would not attempt to explain. Our authorities have been unable to formulate a plausible explanation so far as I am able to learn. The last I heard of Lane he was removing the colon to discontinue the process of auto-intoxication. It might be possible that an operation on the duodenum might be devised

that would be more promising and strike a direct blow to the cause.

Many of the patients have all three of these stages present from a short to a considerable time before the special attack or crisis, and often after a mild crisis seemingly overcome the disturbance for some time if not entirely. However, the cases who continue to harbor more or less of this trouble may have one or more of the above symptoms and their findings show a similar picture to those cases having had one or more acute attacks, and yet they have not experienced an attack above described.

Summing up these findings into compact and condensed form for diagnosis, nerve irritability in a greater or less degree is usually present in the nature of general fatigue or exhaustion, insomnia and restless sleep, worry, acute self-consciousness, local pain, general bodily tension and frequently a fear like calamity or an unexplainable feeling.

Invariably a dull or severe headache with vertigo and a lack of eye clearness are experienced previous to and during acute attacks.

Epigastric distress extending into the left upper hypochondriac region with respiratory and cardiac embarrassment, after over-eating, is usually experienced by the patient. A coated tongue, atonic stomach with splash sounds, and one or more tender areas in this region are usually present. Tympanites elicited on percussion in the epigastric and upper hypochondriac region, especially after stomach and colon gas has been eliminated for differential diagnosis, stomach by emesis or lavage and colon by high soap-suds flushing, this one condition being more noticeable in the acute attacks, weak, contracted, usually fast pulse and a hemoglobin insufficiency, are usually the physical findings.

Analysis of an Ewald breakfast, removed in 60 minutes after eating, invariably shows high total acidity and hyperchlorhydria.

A seven-hour rice and raisin meal shows the motor insufficient in all cases of one year standing and many cases of shorter duration where severity has been present any length of time.

I am going to give you the history of three cases that I have cared for:

Case 1. Mrs. C., aged 52 years; married; occupation, domestic. I was called to see her about 11 a. m.

Sunday, and found her condition as follows: Deathly sick; nausea, trying to vomit, but did not succeed; very weak pulse, cold and clammy feeling, very foul breath with coated tongue.

Marked respiratory depressed and cardiac uneasy feeling; patient feeling faint; stomach distended, marked tympanites over epigastric region. Patient complained of pain in thoracic spinal region and much epigastric distress.

On emptying the stomach much of her breakfast eaten at 7 a. m. returned, the stomach distention or epigastric tympanites was reduced, but great epigastric distress remained. As soon as it was advisable, a high soap-suds enema was given relieving the colon.

Although somewhat improved cardiac and respiratory depression and marked epigastric distress continued. Tympanites on percussion over the epigastric and extending over the left hypochondriac region was yet very noticeable.

Previous history: Patient has had similar attacks every four to eight months for several years past. Ate heavily and exercised very little; bowels are usually constipated previous to attacks, and she stated she always knew she was going to have an attack, by the nervous feeling with headache, dizziness and abnormal appetite.

Case 2. Mrs. G., aged 56 years; married; very robust. Was called to bedside at 11:30 p. m. When I arrived patient was in a faint or collapsed condition, pulse very weak and intermittent, skin was clammy, cold and drops of perspiration were standing on forehead. After considerable effort patient was roused, but she would fall back into a faint-like condition every few minutes.

Stomach markedly distended and heart was missing every third or fourth beat. Stomach was emptied but very little relief followed, except that she did not go into the collapsed condition. The soap-suds enema gave little result. Marked epigastric and thoracic distress remained. Epigastric tympanites was marked. Eight hours after emesis the stomach was lavaged and three ounces castor oil given through the tube. It was forty-eight hours before the epigastric distress began to improve. And it was the peristalsis of the upper bowel beginning to act that gave this relief, is my opinion. On the third day there was the first bowel action, and from that time the bowel acted freely and the patient was surprised at the large amount of fecal matter that came from her. She had had stomach trouble and an attack previous to this.

Case 3. Man, aged 36 years; single, seen at office. Patient stated he had headaches nearly all the time, was dizzy at times, eyes not clear, tongue coated, stomach distress, especially two to four hours after eating, desire to over eat, chest felt uneasy, was very nervous, had much general rheumatism, logy and bowel sluggishness.

Findings on examination: Systolic heart sound, exaggerated and prolonged, stomach showed dilatation and tenderness, there was tympanites in the epigas-

tric area four hours after eating and the bowels had acted shortly before he came to the office. Reflexes were normal, hemoglobin 90, blood pressure, systolic 130. Weight, 170 pounds. He had lost ten pounds in three months. I sent him home to come back in twenty-four hours with a sample of twenty-four hour urine and prepared for a seven-hour rice and raisin motor test. On his return I gave him an Ewald breakfast. These tests showed motor insufficiency and high total acidity along with marked hyperchlorhydria. The urinalysis showed: total solids, 880; should be 1,060; acidity, 75 per cent; urea, .01 degrees; indican, 6 drops potassium chlorate solution to neutralize in 10 c.c. of urine; albumin, negative; sugar, negative; bile, negative and all the other findings normal.

I feel that in all these cases the trouble was in the upper bowel. Many of these cases give findings similar to those of the third or last examples I have given you, during the intervals of attacks of indigestional crisis.

STRONGYLOIDES INTESTINALIS WITH REPORT OF CASES.

H. C. BLANKMEYER, M. D.,
SPRINGFIELD, ILL.

The importance of a case of the above infection occurring this far North in a patient who had never been in the South demonstrates the ease with which such etiological factors are overlooked until the symptoms are more than aggravated and the patient compelled to take to his bed. When one considers the usual mild symptoms produced by intestinal parasites the following cases are all the more striking.

This organism, according to Tyson and Webster, is a nematode of the Angiostomide family and occurs in two forms, the parasitic or intestinal form and the free living or fecal form. The parasitic form is represented only by females and lives in the upper intestinal tract. They are from 200 to 250 mm. long, cylindrical, and have a pointed tail. The vulva is at the posterior third and contains from 8 to 10 round or elliptical eggs, which are almost as wide as the parent worm. They usually live deep in the mucosa and the embryos emerge from the ova laid in the mucosa, develop in the intestine and are passed in the feces. The larvae are at first from 200 to 250 microns long but increase to two or three times that length. The embryos escape from the eggs while still in the intestine so that in the feces we find only the actively motile embryos.

The eggs, which are strung out in a chain, never appear in the feces except during purgation. As they greatly resemble hookworm eggs, this is a point of great practical importance. In fresh feces we find hookworm eggs and *Strongyloides* embryos. (Stitt.)

The larvae differ essentially from the parent in having a rhabditiform esophagus. In the discharged feces at above 30° C. these develop with one moulting of the cuticle into a free living form with separate sexes. If the temperature is low, the rhabditiform embryos develop into the filariform type, which being ingested form the in-

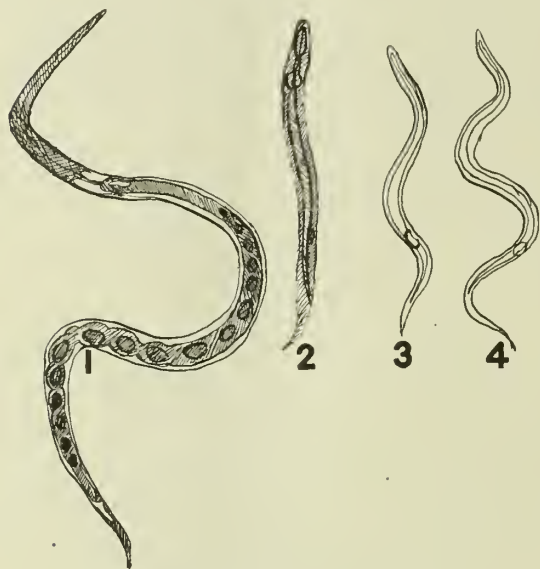


Fig. 1. *Strongyloides Intestinalis*.

1. A gravid female from human intestine.
2. A rhabditiform larva from fresh fecal matter.
3. A filariform larva from culture.
4. Facsimile of specimen found in author's case.

fecting stage. These gain access to the intestine of the new host very probably through unfiltered water or unclean, uncooked vegetables or the skin, or shortly die. The time elapsing between infections with filariform larvae of the sexual generation and the appearance of the parasitic type in the stools is between two and three weeks. They are distributed widely throughout Indo-China, East Indies, Africa, Europe and tropical America.

This parasite, at one time, was thought to be the cause of Cochinchina diarrhea, but that belief is now practically abandoned.

The mother or parent worm is very difficult to dislodge and the curative treatment is not only

somewhat unsatisfactory but must be persistent and long continued.

Case 1. Referred by Dr. W. W. Coleman of Lincoln.

Mr. W. F. N., native of Illinois; aged 32 years; married; no children. Family history negative. Past history: usual diseases of childhood. Always enjoyed vigorous health. No typhoid; no pneumonia. Habits excellent.

Present Illness—At the time he began feeling badly weighed 185 pounds and was given more or less to athletics. His present trouble began in January, 1912. He was at that time engaged in educational work in Indiana, to which place he moved from eastern Iowa three months previously. Prior to moving to Iowa, where he was employed for three years, he had lived in Chicago for a year. I mention his places of residence the more easily to follow up the place of infection. The city in Iowa in which he resided at the time of infection is located on the Mississippi river and is an acknowledged vegetable center. It was at this latter place he noticed that his ill feeling was accompanied by a loss of weight and strength. Vomiting and diarrhea were intermittent, exchanging places in the intervals with nausea and constipation. There was more or less abdominal distention at times but no marked tenderness. Three months following the onset of acute symptoms he removed to Indiana and resided there a year, after which time he weighed but 112 pounds, a loss of 73 pounds in that time. During his stay in Indiana his case was diagnosed as pulmonary tuberculosis and received treatment with no benefit. He was forced to give up his position and returned to Illinois, where he was taken through the usual extended course of treatment for gastrointestinal disturbance. He now developed a marked intestinal indigestion and was advised to consult some eminent men in one of the northern states. He did as advised in June, 1913, remaining at the above institution for three weeks. At the time of his going there, he barely could walk and weighed in the neighborhood of 120 pounds. He states a hemoglobin estimation at that time was given him as less than 20 per cent. His case number at the above institution was lost, so that I am unable to get more information as to his condition at that time. A diagnosis of lamblia intestinalis infection was made and he was sent back to his home in Illinois. His physician at home gave him appropriate treatment and his improvement both in health and weight was very rapid for awhile. His gastric trouble continued at times only and a general anasarca developed, which had no effect upon his weight when it disappeared. At this time he could sleep all night, the first time in almost two years, and this habit continued. His physician consulted me by mail and I requested a specimen of feces for examination. Thirty smears revealed nothing and I was unable to make a diagnosis from a second specimen. The patient was brought to a hospital in this city with very great difficulty and upon examination was found emaciated, extremely weak and very

anemic, with sallow complexion, dull, listless expression in the eyes; pupils contracted; coated, furred and rather thick tongue.

Upon moving his left arm he experienced severe pain along the entire inside of the same, radiating to the left chest. This pain was very severe and intermittent. Abdomen was somewhat tympanitic and tender. Heart and lungs were normal. Constipation was rather marked and he complained of a bad taste in his mouth with a variable appetite. His pulse was rapid, soft and easily compressed. He estimated his weight at about 115 pounds. A blood examination showed: hemoglobin, 26 per cent; red cells, 640,000; white cells, 4,600. The high color index in this case is accounted for by the rapid hemolysis, with spilling of the hemoglobin into the plasma of the blood, caused by the toxins of the larva.

The urine showed: color, dark brown; specific gravity, 1.010; reaction, acid; albumen, trace; sugar, none; casts, none.

He was given five grains of beta-naphthol every half hour until six doses were given, followed in two hours by two ounces of castor oil and the feces examined. An embryo was found in every loop full in all stages of development but not active. Iron and arsenic hypodermatically was alternated daily with the above for a week; then the former was given alone. Forced feeding and olive oil were instituted and the improvement was rapid. Weekly courses of beta-naphthol and oil were given for the next three weeks, at which time the patient was able to be up and around his room. An examination of the feces showed very few of the strongyloides although some were present. A blood examination on April 18, fifteen days later showed: hemoglobin, 60 per cent; red cells, 2,500,000; white cells, 9,200.

Urine was practically negative. His weight was not taken although he had gained perceptibly.

May 19, one month later, after continuing the treatment as above, his weight was 145 pounds; he was able to travel and felt very well except at times he had severe backache. A blood examination at this time showed: hemoglobin, 85 per cent; red cells, 4,500,000; white cells, 8,500.

Appetite is excellent and his sleep undisturbed. He, however, still has some abdominal distention for which he was given the usual remedies. He writes me that he continues to improve and expects to continue his teaching in September. I am of the opinion he is still the host for the strongyloides in its various forms, but his resistance is better and their easy expulsion gives the case a very favorable prognosis. At no time have I been able to demonstrate the *lamblia intestinalis* or any other parasite or larvae.

Case 2. Seen in connection with Dr. G. F. Stericker of this city. Mrs. G., aged 36 years; married; two children, both well. Has always lived in central Illinois. Family history is negative. Personal history: diseases of childhood, but no other sickness having any relation to the present affection.

Present Illness—Began 15 years ago when the pa-

tient, then a girl of 21 years, weighed 137 pounds as compared to her present weight of 90 pounds. Fifteen years ago she began to have rather indefinite pains in the abdomen and back. These pains, while more or less constant, were not localized and remitted in severity. The pains gradually increased, with less frequent remissions, and were accompanied at times by nausea, but never emesis. Constipation was the rule, although there were attacks of acute diarrhea every few weeks. A feeling of extreme fullness in the upper abdomen new supervened, in connection with a fainting sensation followed by cold, clammy skin, during the day. It is of peculiar interest to note that these weak spells never occurred at night. However, as a substitute, she was frequently awakened at night by what she chooses to call "hunger pains," which were always promptly relieved by the taking of a small amount of food, with no especial attention being paid to the variety of nourishment.

Internal medicines were ineffective and the loss of weight was now noticeable. Two years ago she consulted a surgeon, who promptly made a provisional diagnosis of chronic appendicitis and removed the appendix. This procedure offered no relief and her recovery from the operation was uneventful.

A year and a half ago there developed a severe pain in the right lower limb, which pain extended from the hip down and was characterized by remissions of acuteness regardless of position or mobility. This pain, unquestionably a neuritis, was prominent in both cases referred to in this paper and was promptly relieved by arsenic. The physical examination showed a woman of poor nourishment, fair development and a clear, smooth skin. The pupils were contracted, the tongue coated and the customary unpleasant taste present most of the time. Heart and lungs were normal and clear. The abdomen was moderately distended with mild tenderness only upon pressure. The generative organs were normal and menstruation was regular and not painful. The urine showed nothing abnormal except a rather large percentage of indican. No blood examination was made at this time on account of the apparent absence of anemia and a lack of time.

A liquid stool following the administration of one ounce of magnesium sulphate was obtained and in every loop full from one to five larvae were found.

The prognosis for improvement is good; for a cure should be extremely guarded.

MEDICAL GILBERTS.

SAMUEL DODDS, M. D.,

Number One.

"SAID I TO MYSELF—SAID I."

When I took my degree as a very young man,
(Said I to myself—said I),

I'll work on a broad, philanthropic plan,
(Said I to myself—said I).

I assume ev'rybody is honest. In brief—
That there is such a thing as a dead-beat or thief
Is certainly—well, quite beyond my belief!

(Said I to myself—said I.)

Now, medical ethics shall be my sole guide,

(Said I to myself—said I),

By it's loftiest tenets shall I e'er abide,

(Said I to myself—said I).

In confinements, for instance, I'd feel a disgrace
By taking a fee with a grin on my face

When I hadn't been there to attend to the case,

(Said I to myself—said I).

I'll never be known as a medical snob,

(Said I to myself—said I),

And I'll be on the square if it costs me my job,

(Said I to myself—said I).

I can never believe that another M. D.

Would wilfully steal any patients from me,

Or rip up my back with his bright snickersnee!

(Said I to myself—said I).

DEPARTMENT WINS FIGHT FOR FRESH AIR

The following statement of adjudicated facts will serve to inform the public as to the character of the fight the Department has been waging for better air conditions in the moving picture theaters of Chicago. Of course, this case in itself is isolated, but the litigation involved was backed by a large number of the theater owners of this city who had elected to fight the provisions of the ordinance rather than to provide their patrons with clean, wholesome air.

It can safely be said that this litigation has in a large measure retarded the work of the Department in securing better indoor conditions in this class of buildings; but as the public is well informed, a great many of the theater owners have complied and have spent large sums of money to bring their theaters within the provisions of the ordinance, and for their enterprise and their intelligent cooperation with the Department they deserve credit.

The history of the litigation which has ended in a complete vindication of the Department's contention and the upholding of the ordinance, upon which its efforts were based, is a long step forward toward securing the much needed reforms in the moving picture theaters of this city.

Following is given the detailed history of the case as shown by the court records:

On Sept. 22, 1913, air samples were taken by the Ventilation Division of the Chicago Health Department in the "Washington" theater located at 4230 Cottage Grove Avenue, one of the small houses

against which the Department has been waging a campaign for the past two years. Air samples taken at this time showed a pronounced violation of the ventilation ordinance. As the owner of the theater would not comply with the Department's order to provide a ventilating equipment the theater was closed.

It then developed that Mr. C. C. Whelan was an influential member of the Moving Picture Exhibitors' League. Mr. Whelan applied for and obtained an injunction restraining the city from interfering with the operation of this theater until the case was tried in court and the validity of the ordinance tested.

The case was tried before a master in chancery and occupied in all about four months' time. A decision was rendered Sept. 22, 1914, exactly one year from the date on which the air samples were taken in the theater, or 11 months and 18 days from the date on which the theater was closed. This decision sustained the action of the Department in closing the theater, and also sustained every feature of the ordinance with the exception of the relative humidity clause, which the court decided was unintelligible on account of typographical errors in printing it.

Over 2,800 pages of testimony were taken from experts, not only from Chicago but from other states as well. All features of the ordinance were thoroughly investigated, the quantity of air required per person; the carbon-dioxide content and the matter of prevention of draft received the closest scrutiny; the methods employed by the Department in taking air samples and laboratory methods in analyzing the same were gone over; in fact, samples were analyzed by the Department's chemist in the presence of the master. These samples were taken in various places. In the master's room and in various other indoor localities; also samples of outside air, which were sealed and analyzed by the chemist without his having any knowledge as to where they were obtained. In short, the entire case from beginning to end was marked by its comprehensiveness and attention to detail.

The theater-going public is to be congratulated on the fact that every contention of the Department and every provision of the ordinance were sustained in spite of the long drawn-out fight that was made against it.—*From the Bulletin Chicago Department of Health.*

It is a fundamental principle of community life that no man may use his premises in a way that works harm to his fellow men. A dirty, badly kept house or yard works damage to adjacent property and lessens its money value always; and sometimes becomes a menace to the health of an entire community. It is because this is true that we have a sanitary code and a Department of Health to enforce its provisions against bad neighbors for the protection of those who are doing their best to be good neighbors.

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NOVEMBER, 1914.

Editorials

THE OCTOBER JOURNAL.

It has been our intention to make a statement regarding the special number of the JOURNAL for October. We were anticipated in this by two county societies, which, by the way, have manifested a commendable business interest in the affairs of the society and are alert to the work of the council. More of the county societies should interest themselves in these matters, and we congratulate Green County and Rock Island County on their alertness.

Their resolutions of Sept. 11 and Oct. 13 were, however, a little premature and made before a financial statement of the October number could be given. When they know how little the complete proceedings of the meeting of the Alienists and Neurologists of the United States cost the society, they will not be alarmed at the action of the council in ordering the proceedings of this meeting published, nor at the state of the treasury.

The council ordered the publication of these papers in one number to take the place of one

of the regular monthly editions, thus giving each member the complete proceedings of a very large and enthusiastic meeting, comprising papers read by men of high standing in their specialty from all over the United States. Excepting the annual meetings of the American Medical Association, no other medical meeting held in the United States has elicited more newspaper comment or notice from other medical journals. Many letters of commendation have been received, and we are justified in thinking the council has given the members more for their money than they have ever had in any volume of the ILLINOIS MEDICAL JOURNAL.

The cost of the ordinary issue of the JOURNAL varies from \$190.00 to \$500.00. The cost of the publication of the October number was \$1,317.48. The Chicago Medical Society and visiting physicians from many parts of the country patronized this number generously, and altogether at this date \$662.00 have been received, and 32 orders at \$2.00 a copy have not yet been paid for. This brings the amount up to \$726.00. In all probability more copies will be sold later. If we allow \$500.00 for the usual issue, plus \$726.00 income from this number thus far, we have \$1,226.00. This leaves a difference of \$91.48 which it has cost the society above the usual expense to issue this special number. Is it not worth it many times over?

CHICAGO AS THE MEDICAL CENTER OF THE UNITED STATES.

The present war in Europe will so demoralize all the countries engaged that it will be years before they can again be in position to furnish the facilities for post-graduate studies which they have in the past. This forces the necessity upon us to take advantage of this condition and ourselves meet the great demand for adequate post-graduate teaching.

The Chicago Medical Society has taken upon itself the initiative in starting a great movement to meet this demand, through its committee on medical education, which is composed of representatives of all the medical schools, post-graduate schools, and most of the hospitals. The plan is to make use of the immense amount of clinical material in the hospitals, for the benefit of the profession. Chicago has as great teachers—clinical, scientific and laboratory—as any

other city in the world, an immense hospital supply of material for all lines of teaching and an enthusiastic lot of teachers. Already twenty-seven large hospitals have signified their willingness and desire to work in harmony to give the profession of the world the best teachings and advantages to be had anywhere.

The plan, when developed, will consist of a systematic arrangement of schedules of work done in all these hospitals; the days, hours and clinician to be published in the *Bulletin* and kept on sight in the office of the secretary of the medical society, and, as the work progresses, to have the particular operations or other interesting clinics bulletined every day so that a visiting physician may know each day just where to go

meeting will be followed in December by a large national meeting on public health and hygiene. During the first week in December the City Club of Chicago will have a two weeks' meeting on public health. The National Live Stock Show and the United States Live Stock Sanitary Association of Veterinarians hold their meetings here. Members of the American Public Health Association will meet with the Medical Society and furnish the program. January will be the month for special work in gynecology; the February meeting will be devoted to dermatology; the March meeting, to x-ray, Roentgenology, etc.; the April meeting, to eye, ear, nose and throat, May, to urinary diseases and syphilis; June to pediatrics, and July to alienists and neurologists.

SURGICAL WEEK.

November 9-14, 1914.
Dr. J. B. Murphy, Chairman.

Doctor.	Hospital.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Subject.
N. M. Percy.....	Augustana			8-12		8-12		The Surgical Management of Acute Intestinal Obstruction. Surgery of the Stomach and Duodenum. Carcinoma of the Rectum.
A. D. Bevan.....	Rush Medical College	11-1			11-1			
L. L. McArthur...	Michael Reese.....		9-11					
C. H. McKenna...	St. Joseph's.....		9-		9-			
A. E. Halstead....	St. Luke's.....			8-12				Surgical Diseases of the Kidney. Experimental Surgery of the Stomach. Genito-urinary Surgery.
C. B. Davis.....	Rush Medical College					11-1		
C. Davison.....	Cook County.....	9-10						
W. E. Schroeder...	University			2-4				
D. N. Eisendrath..	Wesley				10-12		10-12	Cancer Cases.
L. E. Schmidt....	Michael Reese.....				9-12			
L. A. Greensfelder.	Cook County.....		9-11			9-12		
C. E. Humiston...	Mercy	10-12		9-12			10-12	
J. B. Murphy.....	Cook County.....					8-10		
G. F. Thompson...	Mercy		9-10					
E. W. Andrews...	Cook County.....				4-			
T. A. Davis.....	West Side.....	1-4						

to see any particular line of work he chooses. During the year there will each month be arranged in addition special lines of clinics, following in this way the plan so successfully carried out in the meeting of alienists and neurologists last July, and the meetings of the surgical congress in former years.

The first of these special meetings will begin during the week of Nov. 9-14, Cancer being the subject of special interest. The meetings of this week are being arranged by Dr. J. B. Murphy, which is proof that they will be a success, and the series of meetings worth any one's time to attend. Cancer will not be the only surgical subject taken up this week, but it is featured strongly. Twenty-four of the leading surgeons of the country have been invited to come and take part in these meetings. The November

The full program of these meetings will be published later in the *JOURNAL*. These monthly meetings are the special subjects taken up by the Medical Society and are in addition to the regular work done in the hospitals. It is estimated that there are from three to five hundred operations performed every day in Chicago, all of which can be made available for the good of the profession.

The plans outlined by the president of the Chicago Medical Society, Dr. Clark, and the chairman of the committee, Dr. Caldwell, for continuous clinics throughout the year, available to visiting doctors, are excellent. That they should be supported and encouraged by the Chicago Medical Society is a move in the right direction for advancing the medical educational interests of Chicago.

Chicago is situated in the population center of the United States. It has well-recognized educational advantages from a medical standpoint. It has an enormous amount of clinical material. It has good hospital amphitheatres and facilities. It has a number of superlatively well-equipped clinical and research laboratories. It has a large number of younger men who should avail themselves of the opportunity of teaching smaller classes and groups, on the basis on which such teaching is carried on in Berlin, Vienna and Paris. It has a large quantity of cadaver material in the County Hospital for post-mortem work, as well as much pathologic material. The latter has not been at the disposal of the medical profession for education purposes to any great extent. But with a united medical profession in Chicago, this material can be made available to every school of every denomination, because pathologic processes are the same, no matter in what school of medicine the patient lived or died.

This large post-mortem material should be demonstrated every day at definite hours, and to these demonstrations the profession should be admitted, as in the pathologic amphitheatres in Vienna. There are a sufficient number of clinics throughout the city to care for as many physicians as would be attracted to Chicago, providing that the material is properly classified and the hours for operations and demonstrations accurately and timely published. Every hospital and every amphitheater in Chicago should be given an opportunity to demonstrate what it can do in an educational line. Its success or failure will depend entirely on itself. No matter how frequently the Chicago Medical Society will announce that clinics will be given, if the teacher is not prepared and does not deliver the instructions, the attendance will mighty soon fall off or dwindle to practically nothing. Clinics that are announced should take place exactly as scheduled.

Experimental and research work, cadaver operations, etc., can be carried on in smaller classes by men who can receive sufficient payment to cover their time, if they take into consideration the advantage which teaching is to the teacher himself.

It has gone out abroad that the medical profession of Chicago is so rent by dissensions that no uniform progress can be made in it. It is

highly desirable that this impression be dissipated.

Those in Chicago who do not know that the success of each individual will aid his own success have no grasp of the progress of educational lines. The more work and the better work Brown and Jones do, the better it is for Smith and White, as the former attract patients and doctors to the city, and some of them will fall to the lot of the latter, if they are deserving.

The Chicago Medical Society is the proper organization to take control of the work. The advantages to be gained from it will then be available to everyone, but only he who does superlative work will receive superlative reward.

A united profession in Chicago can make it the greatest post-graduate and visiting doctor educational center in the United States or the world. The men are here, the material is here and the opportunity is ours. Will we grasp it and avail ourselves of it?

The president and the chairman of the educational committee deserve the support of every member of the Chicago Medical Society in the earnest, unselfish and forceful energy which they have put into this work.

A COMMITTEE REPORT.

In another column of this number* will be found a report of the "Abuse of Medical Charities' Committee of the Chicago Medical Society."

The report is written by Dr. Benjamin Breakstone. It is a lengthy one, but is well worth the reading by every member of the society. The committee has done a vast amount of work, and while the co-operation has not been what the committee desired, nor what they should have justly expected, there is no doubt that a better condition exists.

The time is almost here when the physician will not tolerate the present methods of dispensing medical charity by the hospital and dispensaries. It is to be hoped that in the future more assistance will be given this committee, and that the institutions which are the most flagrant offenders will see that there must be a change in the methods of giving medical charity.

This question is one of importance to every physician in the state. Many free dispensary patients and free operative cases come into Chicago from other parts of the state.

* Page 547.

ACTIONS FOR CIVIL MALPRACTICE.

ROBERT J. FOLONIE, L. L. B.
CHICAGO, ILL.

Third Article.

Threats of suit for malpractice are frequent when bills for services of the physician are presented. I am frequently asked by physicians as to the course which ought to be pursued when such a situation arises.

It is my experience that altogether too frequently such threats, although entirely baseless of justification, prove effectual. Rather than face even a baseless claim of malpractice with its attendant train of evils, claim for services is abandoned and marked to profit and loss. This action heightens the common impression, largely acquiesced in by members of the profession, that the physician is a public servant whose services may be requisitioned at any time, day or night, and paid for or not, as the whim or will of the patient may move him.

If the physician had the protection which a public servant may expect, so that the governmental authority prohibited him from being harassed by actions for claimed malpractice, made suitable provision for his support while furthering the common good and pensioned him in old age, there might be justification for this attitude. Unfortunately such is not the situation, with consequence that the physician has all the burdens of a public servant, with none of the attendant immunities and protections.

It was formerly the case in the legal profession that the advocate made no charge for his services, nor might he even accept gratuities knowingly.

To evade the penalties of a strict adherence to such a course, which would leave the lawyer dependent upon private charity or the fortune of his wife, the advocate had a pocket in the back of his gown, into which the grateful client might deposit his gifts, which the lawyer later found to his great surprise.

Unless the physician is to wear his operating gown with a pocket in the back as his constant badge of a minister of healing, he owes it to his profession and the inculcation of a proper respect for it, to insist upon a reasonable compensation from every patient who has means or income sufficient to warrant a payment.

Charity cases should be such from the incep-

tion and not become so after the rendition of the service.

I am firmly convinced that many actions for malpractice are brought which otherwise would not be, because of the tendency to abandon claims for service, when such threats are made.

The attitude which has grown in such matters and their serious import may be gathered from the account of a recent case, appearing by newspaper report, of the shooting of a physician who refused to attend a family who owed him an unpaid account.

It is not necessary to commercialize the profession by treating it as a C. O. D. proposition, but a tactful and firm position in the case of known dead-beats, to refuse attendance unless fees are paid, can have none but a salutary effect.

Instead of causing a loss of patients, such a course, if tactfully pursued, will produce an increased respect and no losses which should cause regret.

THE CHICAGO TUBERCULOSIS INSTITUTE

The second General Tuberculosis Conference, under the auspices of The Chicago Tuberculosis Institute, will be held November 12, 1914, at the City Club, 315 Plymouth Court, following an informal dinner at six o'clock. The subject for discussion will be "Co-operation of Public Health Nurses and Social Workers in the Early Detection and Control of Tuberculosis."

SPEAKERS.

1. Miss Edna L. Foley, R. N.,
Superintendent,
Visiting Nurse Association,
"Co-operation of the Visiting Nurse in the Early Detection and Control of Tuberculosis."
2. Miss Rosalind Mackay, R. N.,
Superintendent of Field Nurses,
Municipal Tuberculosis Sanitarium,
"The Work of the Municipal Tuberculosis Nurse in the Early Detection and Control of Tuberculosis."
3. Miss Minnie H. Ahrens, R. N.,
Superintendent,
Infant Welfare Society,
"Co-operation of Infant Welfare Nurse in the Early Detection and Control of Tuberculosis."
4. Miss Helen W. Kelley, R. N.,
Superintendent of School Nurses,

"Co-operation of School Nurse in the Early Detection and Control of Tuberculosis."

Speakers opening the discussion will be limited to ten to fifteen minutes. This will be followed by general discussion.

TUBERCULOSIS NOTES.

For the pain of laryngeal tuberculosis orthoform or anesthesin is preferable to cocaine.

Los Angeles has no tuberculosis nurses. Its death rate from this disease is twice that of Buffalo, where tuberculosis nurses are employed. (*Southern California Practitioner Feb., 1914.*)

Dried ovarian extract lowers the virulence of the T. B. germ and antagonizes its toxin, on which grounds it is recommended in tuberculosis. (*Monthly Cyclopedia, Aug., 1914.*)

About 70 per cent of all children dying between 11 and 14 years of age have findings of tuberculosis, proving infection occurs early in the life of the human being, waiting probably years for an opportunity to overcome the host.

Nitrogen gas injected into pleural cavity in cases of pulmonary hemorrhage, stops hemorrhage almost immediately.

The sitting posture is preferred by many in hemorrhage.

All hemorrhages from mouth should be considered as symptom of tuberculosis until proved otherwise.

An early diagnosis is essential, but in the endeavor to make early diagnosis, do not label non-tuberculars, tuberculosis.

For adults the Moro Test is more accurate than the Von Pirquet.

STATE BOARD EXAMINATIONS.

Dr. C. St. Clair Drake, secretary of the Illinois State Board of Health, reports the results of the examination held in Chicago, June 23-25, 1914. The total number of candidates examined was 229, of whom 163 passed, 63 failed and 3 did not complete the examination.

PASSED.

College—	Year Total No.	
	Grad.	Passed.
Central P. & S., Indiana.....	(1897)	1
Chicago Coll. M. & Surgery.....	(1913, 1) (1914, 40)	41
Fordham University.....	(1912)	1
Bennett.....	(1913, 3) (1914, 11)	14
Hahnemann, Chicago.....	(1900, 1) (1914, 6)	7
Johns Hopkins.....	(1914)	1
Jenner.....	(1914)	2
Northwestern.....	(1914)	19
Ohio, Miami.....	(1914)	1

Rush.....	(1914)	15
University of Illinois.....	(1912, 1) (1914, 57)	58
St. Louis University.....	(1914)	2
Western Reserve.....	(1914)	1

FAILED.

American, St. Louis.....	(1914)	1
Bennett.....	(1912, 1) (1913, 1) (1914, 6)	8
Chicago Coll. M. & S.....	(1909, 1) (1911, 1) (1914, 24)	26
Hahnemann, Chicago.....	(1914)	6
Louisville & Hosp.....	(1908)	1
Meharry.....	(1908, 1) (1914, 3)	4
Northwestern.....	(1914)	3
National, Chicago.....	(1909)	1
Reliance.....	(1911)	1
Rush.....	(1911, 1) (1913, 1) (1914, 1)	3
St. Louis University.....	(1914)	1
University of Illinois.....	(1914)	8

ARMY MEDICAL CORPS EXAMINATIONS.

The Surgeon General of the Army announces that preliminary examinations for appointment of First Lieutenants in the Army Medical Corps will be held on January 11, 1915, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school locally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible.

In order to perfect all necessary arrangements for the examinations, applications must be completed and in possession of the Adjutant General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present twenty vacancies in the Medical Corps of the Army.

Do not forget that it takes something else besides property, that is, just houses and lots, to make up a good neighborhood. It requires that these houses and lots be occupied by good, honest and kindly disposed people, that these people must be cleanly and orderly in their habits and as anxious and willing to protect their neighbors' health and comfort as they are their own. If one neighbor does something that wrongs his neighbors, the whole community feels it. If neighbor A has a case of scarlet fever in his home and through his carelessness this dread disease becomes epidemic in his community, he has grievously wronged those whom it should have been his neighborly duty to protect. Is this not true? Think it over.—*From Bulletin Chicago Department of Health.*

Auto Sparks and Kicks

NON-FREEZING SOLUTIONS.

With the approach of cool weather motorists in certain localities will do well to consider some form of protection against freezing temperatures. While it may appear a trifle early to consider the use of anti-freezing solutions, instances are recorded when the thermometer registered several degrees below the freezing point, 32 degrees, Fahrenheit, in New England in early October.

Saline solutions are not recommended, because of their deleterious effects on the metals of the cooling systems.

ALCOHOL AND WATER.

Water, 95 per cent.; alcohol, 5 per cent.; freezing point, 25.

Water, 90 per cent.; alcohol, 10 per cent.; freezing point, 18.

Water, 85 per cent.; alcohol, 15 per cent.; freezing point, 11.

Water, 80 per cent.; alcohol, 20 per cent.; freezing point, 5.

Water, 75 per cent.; alcohol, 25 per cent.; freezing point, 2 below.

Water, 70 per cent.; alcohol, 30 per cent.; freezing point, 9 below.

Water, 65 per cent.; alcohol, 35 per cent.; freezing point, 15 below.

Water, 60 per cent.; alcohol, 40 per cent.; freezing point, 23 below.

WOOD ALCOHOL SOLUTIONS.

Pct. of Alcohol	Pct. of Water	Freezes at
10	90	18 above zero
20	80	5 above zero
30	70	10 below zero
40	60	23 below zero
50	50	35 below zero
60	40	50 below zero

DENATURED ALCOHOL SOLUTIONS.

Pct. of Alcohol	Pct. of Water	Freezes at
10	90	25 above zero
20	80	15 above zero
30	70	8 above zero
40	60	zero
50	50	10 below zero
60	40	18 below zero

As extreme low temperatures are not to be anticipated for some time, a small percentage of denatured alcohol can be utilized and the amount

necessary to cover a temperature five or more degrees below freezing will suffice.

PEROXIDE IN GASOLINE.

According to an item in *Motor Age*, a new use has been found for hydrogen peroxide, a chemical which heretofore has been considered to have its principal value in the manufacture of blondes. To George B. Celden is due the credit for the discovery. His latest contribution is the fact that if kerosene is treated with peroxide of hydrogen it burns freely and completely in the cylinders, causing no smoke or smell in the exhaust and forming no deposit. Further, that ordinary carbureters can be used, if they give a sufficiently wide range of air adjustment, and exhaust gas can be used for heating them. As the incomplete combination of the raw kerosene, with the attendant carbonization and smoking has been the chief obstacle in using the cheaper fuel in gasoline engines, this development may give kerosene a much wider use. As to the cost of the treatment, it is stated that this is little more than the labor of handling.

Theoretically, the complete combustion of fuels as a result of treatment with peroxide of hydrogen is to be expected, for when it is decomposed by heat it gives off quantities of oxygen which unite with the fuel proper.

HOW TO KEEP TIRES.

Remember that new tires carried on the side of the car if not protected from the sunlight will quickly oxidize, crack and become quite worthless. A new tire should preferably be put into service a little while until the cover has been soiled. It will not then deteriorate near so quickly. It is better, however, to have a cover for extra tires.

Do not store them away in a warm place for any great length of time. Light or heat will cause the sulphur to come to the surface and make the cover minutely porous. After this oxidation takes place the nerve fibre of the rubber is destroyed and naturally the durability is greatly impaired. A dark, dry room at a temperature of forty or fifty degrees is most favorable for retarding chemical action in the rubber and the "friction" stock on the fabric layers.—*L. Greenwald, Firestone Tire and Rubber Co.*

Society Proceedings

ADAMS COUNTY.

Regular monthly meeting of the Adams County Medical Society was held Monday, October 12, in the directors' room of the Hotel Quincy. The attendance was rather small, owing to the disagreeable weather.

The guest of the society on this occasion was Rev. L. H. Greeman, pastor of the Unitarian Church of Quincy. The reverend gentleman came as a representative of the Civic Improvement League and assured the doctors that the league would assist them in any way to better Quincy, especially to improve the milk supply. He made a plea for "pure milk." Suggested that a milk inspector be employed to decide what the specific gravity of milk and cream should be; to inspect the milk and also the dairies. In conclusion he stated that an ordinance should be passed and enforced, compelling the dairymen to distribute the milk in sterilized bottles.

A very interesting discussion followed, which resulted in Dr. L. H. A. Nickerson making a motion that the next meeting be devoted to the milk question and that the program committee formulate a plan for the discussion of the same. This motion was seconded and carried.

The secretary read a communication from County Judge Lyman McCarl, secretary pro tem. of Quincy's Welfare Federation, requesting appointment of two delegates to attend the next meeting of the federation, which will be held at the Cheerful Home rooms, Monday, October 26.

Drs. Dan Stine and Elizabeth Ball were appointed as delegates, with Dr. C. A. Wells, alternate.

Luncheon was enjoyed in the dining room of the hotel.

In the afternoon Dr. Dan Stine gave an instructive and practical talk on "Dianosis, With Special Reference to the Value of Laboratory Diagnosis in Disease." The doctor illustrated his talk with charts. Those who were absent missed a treat and those present felt well repaid for coming.

ELIZABETH B. BALL,
Secretary.

CLARK COUNTY.

The Clark County Medical Society met at the courthouse in Marshall, Oct. 8, 1914, at 2 p. m.

Members present: Marlow, Wilhoit, McCullough, Johnson, S. W. Weir, Mitchell, S. C. Bradley, Hall, Burnside, L. J. Weir, Haslitt, Pressett. Visitor: Dr. C. C. Holman of Effingham.

D. L. Wilhoit reported a case of chills and sweats at and after confinement for four weeks. They would quit for four days and return. Child was dead two or three days when born. Uterus was curetted in three weeks after confinement; fever ran high after many of the chills to 106 some days; had three or four chills. Case is considered toxæmia,

not infection, which is based largely on laboratory findings in blood and specimens from uterus and urinalysis.

S. W. Weir reported a case of uterine discharge after abortion at second month and at operation a few weeks later the remains of an ectopic gestation were removed. The sack of fluid seemed to have been discharging through fallopian tube into uterus.

R. A. Mitchell reported a child with bowel trouble that is very troublesome and a pearl button and some pieces of thorns were passed from bowels, with large amount of mucous. Dr. McCullough reported a child that had bowel trouble for long time and passed a bottle cork. In the discussion of these cases other cases were reported and many points made in treatment of bowel troubles.

Dr. C. C. Holman presented the paper of the meeting on "Practical Laboratory Diagnosis," dwelling especially on the urinary findings in tuberculosis of the kidney, with report of a case and exhibited the kidney, showing areas of involvement. The importance of repeated urinalysis in all chronic cases and many other practical points were brought out.

Dr. H. C. Houser was unanimously elected a member of the society.

Upon invitation of Effingham County Medical Society it was voted to attend as a society their meeting October 13, 1914.

L. J. WEIR,
Secretary.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

ANNUAL REPORT OF ABUSE OF MEDICAL CHARITIES COMMITTEE.*

BENJ. H. BREAKSTONE, B. S., M. D.

Professor Surgery, Bennett Medical College (Medical Department Loyola University); Consulting Surgeon Mary Thompson Hospital for Women and Children; Attending Surgeon, Jefferson Park Hospital.

The problem of abuse of medical charities is not only most closely allied to medical economics, but also to the question of medical ethics, and on its solution depends the entire future of the medical profession of this country. We are all familiar with the tendency toward compelling people in this free country of ours to employ physicians and surgeons not of their own choice. Such is practiced by the various industrial insurance corporations and the workingmen's compensation act. In this report we will not go into this matter at all except to briefly call the attention of the medical profession to the various inroads made into their incomes by the various fraternal insurance orders in addition to the aforementioned as well as by hospitals and dispensaries, which treat patients free, regardless of their ability or desire to pay a physician. The question which concerns us is, "what has the present Abuse of Medical Charity Committee accomplished in the past three years?" We believe it has tried to do its utmost for

*Presented at the meeting of the council, October 13, 1914.

the members of the Chicago Medical Society, but we have found that those in our profession who were in a position to aid us most have tried to block every advance in this line for the good of the profession and the community. Some time ago the following resolutions were adopted as part of the by-laws of the Chicago Medical Society:

1. It shall be unethical for a member of the Chicago Medical Society to treat free, in any institution, patients who are able to pay.

2. Every applicant for free treatment in dispensaries, hospitals or other institutions shall furnish a certificate signed by a member of the Chicago Medical Society proclaiming the applicant to be unable to pay for medical service.

The passing of these two resolutions in their particular workings should have been sufficient, if we are really sincere, to stamp out or at least to minimize medical charity abuse; however, neither of them has ever been enforced. The passing of resolutions or the putting of laws on statute books means absolutely nothing to the people who are to benefit therefrom or to the public at large unless these same rules are enforced. It might be argued here, "how are we to know whether a patient is able to pay?" To cope with this situation a resolution was passed shortly after the first two resolutions: "We shall publish in the Chicago Medical Bulletin, the names, addresses, occupations, ages, etc., of all service patients in hospitals," and the following hospitals agreed to send in their lists of the service cases each week and these hospitals should be patronized and preferred by our members.

Monroe Street Hospital.

North Chicago Hospital.

Northwest Side Hospital.

Chicago Eye, Ear, Nose and Throat Hospital.

German Evangelical Deaconess Hospital.

Lakeside Hospital.

Post-Graduate Hospital.

Ravenswood Hospital.

Littlejohn Hospital.

Jefferson Park Hospital.

Pythian Hospital and Aid Association.

Park Avenue Hospital.

Michael Reese Hospital.

Anna Ross Hospital.

South Chicago Hospital.

South Shore Hospital.

Rhodes Avenue Hospital.

Lincoln Hospital.

Lake View Hospital.

West Side Hospital.

German-American Hospital.

Streeter Hospital.

Peoples Hospital.

Emergency Hospital.

Provident Hospital.

Chicago Fresh Air Hospital.

Augustana Hospital.

Mercy-N. W. University.

Vesta Circle.

A resolution was also passed that we bring about a uniform system of entrance records in each in-

stitution where patients are treated free. The advantage of this is apparent. Some of the hospitals listed above have been very faithful in sending in their lists, but to prove the insincerity of those who might have assisted us I herewith reproduce the following letter:

Dr. Benj. H. Breakstone,
Chicago.

Dear Doctor: I was directed by the Board of Trustees to delay publication of the names of the charity patients in the hospitals until such time as they could be satisfied regarding the legal status of the question.

Allow me to suggest that the committee on the abuse of medical charities present to the Board of Trustees at its next meeting the arguments in favor of publication of such names and also the responsibility of the society in case of damage suits, subsequent upon publication of such names.

Very truly yours,

(Signed) CHARLES H. PARKS,
Secretary.

CHIP/EN

I wish to say that before the resolutions were introduced authorizing the publication of the lists your committee consulted eminent attorneys and found that there was no liability whatever, and after months of wrangling the trustees were finally satisfied that the lists may be published. Even after that very point has been argued previously in the council meeting. This decision, however, was too late to allow of publication of names this year. This action alone has prevented the committee from doing anything in the line of correction of medical charity abuse the past year. The idea of publishing these lists was that every member would look over the list and if a patient that he knew was able to pay, was a service case in any hospital, he would either call up the Chicago Medical Society or call up the hospital and notify them to refuse further treatment of that patient without adequate compensation. Thus we would be doing some real good to our members and the community by preventing imposition, pauperization and dishonesty on the part of the patient and I believe that this alone would be sufficient inducement to make the physicians who are not members of the Chicago Medical Society, join us. It would do more than that. It would teach the people that if they are able to pay physicians, they must do so and if they once learn that they must pay a physician they would surely call on their family physician in whom they have confidence. In publishing these lists it was not intended that only the charity patients' names be listed; because hospitals, except the County Hospital, are investigating patients who cannot pay the hospital fee and therefore they see to it that no patient is taken in free who is able to pay since that makes an inroad into their own finances; but as a general rule they do not care whether the patients are able to pay a physician or not, as long as they can pay for a bed. It is these service cases where the greatest amount of abuse exists, because the people accepting such service are under the impression that in paying the hospital the physician also gets pay in some manner or form and they are not made to feel that they are the recipients of charity at all.

There are even hospitals which will take patients in private rooms as service cases and the attending physician or surgeon will not dare refuse these cases treatment except in rare instances, even though these patients can well afford to pay more than a good fee. The attending men who do this are absolutely careless of the harm they do the medical profession and they should be disciplined in some way. Your committee has been willing to bring this before the ethical relations committee, but has so far received no encouragement. As medical men, brothers of one profession, it behooves us to look out for the other fellow and by so doing we will elevate the profession at large. We should all awaken to the fact that *none of these institutions could run without medical men* and it is up to us to see to it that the profession as a whole is *recognized* and not look out only for our own selfish benefits to the detriment of the whole profession. If we follow our own selfish interests at the expense of the whole profession there will come a time when these very conditions will rebound upon the ones nearest and dearest to us.

The committee has also arranged and held meetings with the commissioners of Cook County. We have received promises of their support, but so far nothing has materialized beyond mere promises. The committee has investigated the method of stamping out abuse at the Cook County Hospital and a report was made December 10, 1913, at the symposium on "Physician's Compensations and Medical Charities," which was published in the February, 1914, number of the *Chicago Medical Recorder*. To that paper we would earnestly direct the attention of every member.

WHAT OTHER CITIES ARE DOING.

In New York state every attendant in a dispensary is paid and not allowed to work free. No institution for free medical treatment can open in any locality unless it proves to the State Board of Charities its need. In our city within the radius of two blocks there are some half dozen institutions each competing for the greatest number of free patients, not because of the actual good they wish to do these patients, but merely to make a record as to how many "cases" they have. These "cases" are "handled" by men who in the main have had little or no experience whatever and are merely "getting their experience" on these "so-called charity" patients. In accordance with our Code of Ethics of the American Medical Association we dare to call this charity. Even if the clinicians are all men of ability and experience we cannot conceive of charity being done by physicians in leisure hours between the times they are treating patients for pay. *Will any of these clinicians refuse to call on a patient from whom they receive a fee during the time that they are treating the "charity" cases in an institution?* We shall leave the answer to every member of our profession who is engaged in this work to make for himself, honestly and conscientiously. Medical charity abuse has been so flagrant in New York that the curse became apparent

even to laymen and a law was passed in Section 25, Chapter 36, as follows:

Any person who obtains medical or surgical treatment on false representation from any dispensary licensed under the provision of this act shall be guilty of a misdemeanor and on conviction thereof shall be punished by paying a fine of not less than \$10 and not more than \$250. Imprisonment until fine is paid may be imposed.—Criminal Code Pro. No. 718 (Medical Economist, August, 1913).

You will observe here that the *hospitals* where the abuse is much greater is *scrupulously left out of this law*, for the reason that the so-called philanthropists and rich people could not become powerful and popular if they could not give some money to a hospital, which will advertise them. It would seem that this law would go a long ways toward the prevention of medical charity abuse. But it has never been in actual operation. (Oscar Ratter in the Medical Economist, August, 1913.)

Your committee has been in communication with the leading clinical centers of this country. New York. Philadelphia, Boston and St. Louis are looking with searching eyes as to what Chicago is doing in this matter. We here reproduce a letter from the committee of the New York Academy of Medicine. The committee there is known as the Public Health Hospital and Budget Committee. The letter and resolutions are self-explanatory and are as follows:

March 15, 1912.

Dr. Benj. H. Breakstone,
Chicago.

Dear Dr. Breakstone: I have your kind letter of March 11 in which you describe some of the efforts on the part of the Chicago Medical Society with reference to the regulation of the dispensary system. Your letter is very suggestive, and as we have entered upon a campaign for better control and administration of the dispensaries, I should be very much obliged to you if you will be so kind as to give me some more details about the work of the Chicago Medical Society.

On February 29 we succeeded in bringing about a conference at which we had fifty-six delegates representing thirty-five institutions and at this conference a resolution was passed, a copy of which I am enclosing, to the effect that a committee be appointed to act as a committee on temporary organization. This committee will meet very soon and all the suggestions that we could get will be highly appreciated. Thanking you in advance for your kindness, I am,

Very sincerely yours,

(Signed) E. H. CORWIN,
Executive Secretary.

RESOLUTIONS.

WHEREAS, The Out Patient Department of hospitals and dispensaries represented at this meeting acknowledge their common responsibility for the proper treatment of the sick who are too poor to pay for medical advice and treatment and are not eligible for admission to hospital; and

WHEREAS, Their work hitherto has not been co-ordinated, neither has it been effectually regulated, either by law or by the voluntary adoption of suitable standards; and

WHEREAS, The volume of dispensary work in the absence of suitable checks tends constantly to increase, while its quality in the absence of recognized standards and for want of sufficient means *does not improve* as rapidly as does the quality of other forms of organized medical or other charitable relief; therefore, be it

Resolved, That the dispensary representatives here present favor the formation of a co-operative dispensary association, which shall have for its immediate objects the co-operation of the work of existing dispensaries and outpatient

departments in the Borough of Manhattan, the elimination of unworthy applicants for medical treatment, the promotion of proper standards of treatment for the worthy, and the furthering of such changes in *methods as shall make for economy and efficiency in dispensary management*; and be it further

Resolved, That a committee of five to be appointed by the chair be invited to serve as a committee of temporary organization with power to add to their number as many representatives of dispensaries and of hospital outpatient departments as may signify their willingness to co-operate in this movement.

We will also reproduce here the correspondence with St. Louis:

F. C. E. Kullmann,
Secretary St. Louis Medical Society,
St. Louis, Mo.

My Dear Doctor: Yours of the 26th ult. addressed to the Chicago Medical Society has been referred to me as chairman of the abuse of medical charities committee.

In your letter you did not state for what purpose you wished to investigate the hospitals and clinics. If it is for the purpose of weeding out medical charity abuse I shall be very glad to answer any questions which you may wish to ask. The investigations of hospitals, clinics, etc., will prove conclusively that a large percentage of patients who are well able to pay are treated free.

The only method to pursue is by getting names and addresses of applicants to these various institutions and follow them up with a view of ascertaining whether they are able to pay. In our city we have had to do that outside of the institutions, for very few of them are willing to submit to us this data and it is really of very little import to make such an investigation, for the members of your own society can throw more light on this subject than any one else. Trusting that I may hear from you very soon, I remain,

Fraternally yours,
(Signed) BENJ. H. BREAKSTONE.

P. S.—I enclose you herewith a copy of our bulletin and would like to have you note what the meeting for December 10 is and if it is possible for you to come or have some one representing your society come to this meeting you may learn something of interest. You see I am taking the liberty of presuming that St. Louis is a suburb of Chicago.—
B. H. B.

December 10, 1913.

Dr. Benj. H. Breakstone,
Chicago.

Dear Doctor: I wish to acknowledge receipt and thank you for your letter of December 3.

My letter was forwarded to the secretary of the Chicago Medical Society at the request of the chairman of the committee on hospitals, clinics and dispensaries, Dr. Norville W. Sharpe, to whom I have forwarded your letter and the copy of the bulletin of the Chicago Medical Society.

Dr. Sharpe is very anxious to hear from your society and will very likely communicate with you in the near future. Thanking you again for the promptness of your reply, I am,

Fraternally yours,
(Signed) F. C. E. KULMANN,
Secretary.

In Philadelphia the one thing that has been done thus far is the following, which is copied from the *Roster* of June 15, 1912, the official organ of the Philadelphia County Medical Society:

CURBING HOSPITAL CHARITY ABUSE HERE.

The following letter, a copy of which has just been sent to the officers of each hospital and dispensary in Philadelphia, proves the activity and persistence of those aiming to suppress the abuse of medical charity throughout the city. Favorable responses are already being received.

HOSPITAL DISPENSARY COMMITTEE.

The committee appointed by the Philadelphia County Medical Society to investigate this matter is of the opinion that the hospital dispensaries are being abused and we think the adoption of the following card, as recommended by the Board of Directors of said society and as adopted by the New York State Board of Charities, will serve to eliminate those not entitled to free treatment:

Name
Dr.
Nationality
Occupation, man
Income
Date
Number in family.....
Address
Woman
Rent

This is my.....application to this dispensary in the year.....(or to the following dispensaries).....

The foregoing statement is in all respects true.
AdmittedRefused

Very truly yours,
C. B. LONGNECKER, Chairman.
JOSEPH D. FARRER, Secretary,
1944 North Broad Street, Philadelphia.

N. J. G. BEARDSLEY,
E. W. KELSEY,
G. M. ILLMAN.

There were other attempts made to do something in Philadelphia as will be seen from the following copy of the *Philadelphia Ledger*, July 31, 1911:

MEDICAL CHARITY ABUSE CONTROL.

To overcome the difficulty in charitable work, charitable societies have adopted a plan for the exchange of information. Under this plan each society sends to the registration bureau at stated intervals, preferably every day, either by mail or telephone, a list of the cases which have applied for its assistance. In response to this inquiry the charitable society is given the names of such other charities as have already registered the same cases. It is then in a position to prevent overlapping of effort and to get in touch with those other agencies to see how its applicants have reacted under previous treatment. This system of registration is now used by several charitable societies in Philadelphia, and also by as many dispensaries and hospitals, and one of the medical agencies would testify to its great value in eliminating one form of dispensary abuse.—*Ledger*, July 31, 1911.

PHYSICIANS' ECONOMIC CLUBS.

So much has the abuse of medical charities made an inroad into the income of the physicians that many physicians' economic clubs are springing up and up to date there is the Medical Alliance of New York and Brooklyn Economic League, the Brooklyn Physicians' League, the Downtown Physicians' Protective Club of New York and the Physicians' Protective League of New York, and in the West, the Illinois Medical Economic League, which has a subsidiary branch known as the Physicians' Economic Club of Austin. These leagues are paying exclusive attention to medical economics and most of their discussions are on the subject of the medical charity abuse. There is a journal known as the *Medical Economist*, published in New York, which also gives a great deal of space to medical charity abuse.

CO-OPERATION.

It may be argued here that your committee has looked upon this matter purely from the physician's

standpoint. That is not the case, however. Repeated attempts have been made to get the co-operation of all the institutions and on April 5, 1913, the following letter was sent to the superintendent of all the hospitals in Chicago with a return postal card here reproduced:

Dear Doctor: There will be a conference of the Committee with the Superintendents of Chicago Hospitals, Thursday, April 10, at 3 p. m., at the Sherman House. Nearly one hundred invitations have been issued and a good attendance is anticipated.

It is hoped that every member of the Committee will come, as the conference is considered a very important one.

Kindly indicate on the enclosed card whether or not your presence may be depended upon.

Very respectfully,

(Signed) W. F. von ZELINSKI, Secretary.

Post Card.

I will be present at the meeting at the Sherman House, April 10, 1913.

.....
.....

To the Superintendents of Hospitals, Chicago

The Committee on the Abuse of Medical Charities of the Chicago Medical Society invite you or a representative to attend a conference of hospital superintendents to consider the matter of a uniform system of hospital records to be adopted by the various medical institutions of the city for the purpose of establishing an ethical standard in co-operation with the Chicago Medical Society.

Kindly indicate on the enclosed card if it is your intention to be represented at the conference.

(Signed) BENJ. H. BREAKSTONE, M. D., Chairman.
W. F. von ZELINSKI, Secretary.

Time and place of meeting:
April 10, 1913, 3 p. m., at the Sherman House, Clark and Randolph streets.

The report of that meeting was given last year. It seems that one of the members of the committee of 1913, who is presumed to have some standing in the profession of Chicago attended that meeting long enough to give a little talk concerning moral suasion, which we would have been very glad to use *were sufficient of the so-called leading hospitals represented so that they could be morally suaded*. During that meeting a representative of the Children's Memorial Hospital was appointed as chairman of a sub-committee to get the co-operation of the hospitals and a meeting was arranged for, to be held at the Children's Memorial Hospital. For some unaccountable reason she resigned from that committee three days after she was appointed and accepted. Every effort has been made to get the co-operation of all the hospitals in Chicago and so far only thirty-five have agreed to co-operate. It is noteworthy here to mention that some of our largest hospitals such as the Presbyterian, St. Luke's, Wesley, Henrotin Memorial Hospitals, etc., are conspicuous by their absence from this list. And in those hospitals work some of the favorably known men in our profession, those who have held high offices in the Chicago Medical Society and who have presumed in the past to be our advisers. This committee is simply calling attention to this fact so that these men may be aroused from their lethargy to help do something for the medical profession of Chicago that will be of some material benefit and will

therefore directly encourage the progress of ethical and scientific medicine.

A meeting with the Board of Commissioners of Cook County was also arranged for as well as a symposium on this subject December 10, 1913.

CLINICAL TEACHING.

Some years ago in a symposium on the "Abuse of Medical Charity," held at the County Hospital, Dr. C. S. Bacon ably showed that more than two-thirds of our clinical material is wasted. In this connection at that same meeting Dr. J. B. DeLee stated that people earning as high as \$40 per week were entitled to the services of the Chicago Lying-In Hospital and Dispensary free, because they were given service which the general practitioner could not render. This is a great injustice to the intelligence not only of the general practitioner of Chicago, but *if true, is a slur upon the men who have taught us obstetrics these many years*. And we cannot conceive how the average junior or senior or even the intern, too, who does the work for the out-patient department of Chicago Lying-In Hospital and Dispensary, and pays for the privilege, is better equipped in obstetrics than is the general practitioner who is at least *directly responsible to his patient*. The student or the intern has no responsibility whatever and neither is the institution that sent him responsible for it is not liable under the law. *Is the public at large acquainted with this fact?* Probably not or they would not so far lower their self-respect. Surely this is no excuse to pauperize people earning less than \$40 per week and we would remind the physicians that out of this number five thousand physicians have to make their livelihood in an honorable and ethical manner. Dr. Bacon's figures show conclusively that "Clinical Material" is also only an excuse for the existence of medical charity abuse. At this day the average intelligent patient will not hesitate to be shown clinically if he is suffering with an uncommon disease even though he pays to clinician for his services. As a matter of fact in the so-called lesser medical schools which are not in connection with charity hospitals they have more than ample clinical hospital material from among pay patients.

HOSPITALS AND DISPENSARIES.

So anxious are some of our hospitals and teachers and other organizations to do charity that they even advertise to do work free. Of course, these people might be perfectly safe from the penalties of the American Medical Association on account of the fact that they are not *directly advertising for patients for pay*. But how about the effect it has on the profession at large, and not only that, what effect can such a thing have on the public at large? If we advertise for and are anxious to do the thing free. In the *Daily News* on Wednesday, September 17, 1913, the following appeared on page 10:

Will you kindly tell me where I could take my little child of three years to have him treated for weak ankles? I should like to have him treated at once. Please tell me what will make his hair grow, as it is very thin. What is the proper food for a child of that age? Chicago.

Answer—If you will take your boy to the Children's Memorial Hospital, 735 Fullerton avenue, he will be treated *free of charge*. Call any Monday at 2:30 o'clock. Keep the child's hair clean and once in a while apply a little vaseline to the roots. When his health begins to improve I think you will find that his hair will be in better condition. I should not like to advise a system of diet, as his doctor will advise you what to give him while he is under treatment.

We have also all received, as have a great many laymen from the Ottawa Tent Colony, an offer to send us *free* all the tuberculin we may need as is shown by the post card following:

Ottawa Tuberculosis Colony, Ottawa, Ill.
Chicago Office, Suite 910-31 North State St.
Telephone Central 2750.

With a view to assisting physicians in making an early diagnosis of tuberculosis, we will furnish, *gratis*, the necessary materials and instructions for making the cutaneous and sub-cutaneous tuberculin tests. We will also make sputum analysis *free of charge*.

You need feel under no obligations in accepting this service.

(Signed) II. V. FETIT, Superintendent.

Surely our profession must be made up of philanthropists? and that the BULLETIN should take part in such "fake charity" is sufficient evidence that some of our leaders who are in power are not sincere on this subject, as is shown by the following from the BULLETIN two years ago:

SCIENTIFIC NOTICE.

Any member who wishes the luetin cutaneous reaction for syphilis applied to any patient, can have the same *free of charge*. B. C. Corbus' clinic at the Post-Graduate Hospital on Monday or Friday afternoon from 2 to 3:30.

A SCIENTIFIC WANT.

Any member who may have a case of twin pregnancy under observation please notify Dr. J. B. De Lee and Dr. P. S. O'Donnell, as they would like to take some roentgenograms if possible. A donation of \$10.00 awaits the mother and \$20.00 for the attending physician. Communicate with Dr. P. S. O'Donnell, 29 East Madison street, Chicago.

PHILANTHROPIC INSTITUTIONS.

We notice in the classified list of philanthropic institutions issued by the Association of Commerce a number of institutions which we know do not accept any charity patients yet are recommended for the support of donors. These are the Chicago Fresh Air Hospital, Chicago Lying-In Hospital, the Illinois Training School for Nurses, the Mary Thompson Hospital and the Chicago Winfield Tuberculosis Sanitarium. There may be others, but we are not in possession of the facts. Winfield Sanitarium does take free patients, but they only advertise among the profession for pay patients, and their co-operation in making their staff known.

In justice to the above named institutions, however, we might say that they are not institutions for profit and that they never pay any dividends, nor has any one profited by them but the fact remains that they do no charity. A charity institution should be one in which a patient is taken in free without any charge whatsoever. If we charge anything and it costs the institution more than what the patient pays, it is not charity. It is merely selling a bargain below cost.

If it is charity the patient should be so informed that we might be honest with him. There are many hospitals in Chicago which accept patients for from \$8.00 per week up and those are private hospitals where the patient knows that he is paying his way and *receiving no charity*. These hospitals do not pretend to be charity institutions either, and are able to give the patient everything that he requires for the amount that he pays and therefore the patient is not pauperized nor is the public fooled. Some of these hospitals are able to pay dividends out of the moderate fees they charge the patients. Still they do not profess to be philanthropic or charitable institutions.

LIABILITY OF CHARITY HOSPITALS.

This brings us to a fact which is not generally known to the public and that is, that neither a pay patient nor his beneficiaries *have any legal redress, if they are mistreated or if they are the victims of accidents in a charity hospital even though they may pay \$200 per week* for the treatment they receive in any one of Chicago's charity hospitals. Do these hospitals inform their patients of this fact, and if these are really philanthropic institutions is it right or is it humane to be working under a law that enables these institutions to mistreat not only the charity patients, but are also absolutely immune from legal liability, even as regards pay patients. Surely this to my mind is indirect violation of the equal rights that are granted us by the constitution of the United States. It is also un-American for any hospital to classify its patients into charity wards, part pay wards, pay wards, etc., and give a different diet to each one of these classifications and even have special entrance for private wards. In quite a number of these so-called charity hospitals the cost per capita per day is in the neighborhood of \$2.75 to \$3.00 and *any patient paying less is put down as receiving part charity*. The patient is not informed of this fact, however, unless there is trouble; then he is made to feel that he is an *object of charity*. These patients, however, do not want charity and would be glad to pay more and most of them can pay more. They are shown rooms, told the price and *under false pretenses are made to be objects of charity*. These same patients would be glad to go to a hospital that does not charge any more than this. Many of them charge less for the same accommodations in a *private hospital that is liable for the mistakes and accidents that might occur*, and would then not be recipients of charity and thus not pauperized. Theoretically (and it should also work out practically), a charity patient is *entitled to the same treatment that a pay patient gets* without luxuries, of course, and by this I mean that the charity patient should have the right to get *prompt attention and choice of physicians* just as though he paid for it, and what is more he should have legal redress in case of accident or mistreatment. This is real charity. As it is now a premium is put on carelessness and inhumanity in our charity institutions for those having charge know that they are *legally not liable*.

DISPENSARIES.

According to the rules laid down by the Board of Health of the city of Chicago free dispensaries are those which charge not more than fifteen cents for prescriptions. There is scarcely one dispensary in this city which abides by this rule so that most of them are running illegally. Aside from this and from the standpoint of doing good to the community a dispensary should be open *evenings and holidays* so that a poor working man should not have to lay off from his work to see a doctor and thus deprive his family of his day's pay. *This brings on more poverty.* You can go into any dispensary and find many people waiting for a doctor for hours, and when he comes, if he comes at all, he gives these patients only a few minutes of his time and for that they must deprive their families of the pay they might have earned that day, and on account of absence might possibly lose his job. Philanthropists should look into this matter. You will find very often that forty or fifty patients are treated in one or two hours by these "wonderful" attending men in a "thoroughly scientific" manner. These figures speak volumes for the inefficiency of these institutions. Some may say that this whole argument is purely financial, devoid of all sentiment and scientific reasoning. No one can do charity work conscientiously unless he has sufficient to live on himself. If you will look into the staffs of the various dispensaries you will find that they are made up of young practitioners who hope thereby to gain a practice, and if they cannot get something out of it or as is commonly called "graft" they do not keep that position long. Indeed most of the members of dispensary staffs, especially one connected with a college or hospital, soon finds that if any patient is able to pay they better not take that patient to their own office, even though the patient wishes to go there. They must report that patient to the "Professor," who is at the head of that department. I am quoting here from a letter written to the chairman of this committee by the professor in charge of the largest dispensary in Chicago:

What I intended to say certainly was that the medical profession objected, and had a right to object to members of the dispensary staff securing patients in this way. Moreover, the faculty of the college and the trustees of the dispensary are unalterably opposed to such practice, and one of the inflexible rules of the institution has always been that this should not be done. It has been in several cases the cause of removal of a member of the staff because he had violated it. It is absolutely ruinous to the morale of an outpatient department to permit such practice. The filching of a patient away from the dispensary to the attendants office and charging a fee for his services is the most flagrant violation of this principle.

This letter was in answer to a communication to him from the Abuse of Medical Charities' Committee from which we quote as follows:

All we want is that the people who can afford to pay for medical attention should not be treated free at the dispensary. We don't care to whom they pay so long as they pay. However, when people find out that they cannot get free treatment unless they are poor, then the ones who can pay will soon refrain from coming to the dispensary and

will consult their family physician. Thus, far from kicking against it, we fully approve of the dispensary doctor getting a fee if he can; first, because it is perfectly legitimate not to allow one's self to be imposed upon; secondly, because it limits the abuse of medical charities; and, *thirdly, because it will weed out the dispensary frauds and restore them to their family physician where they belong.* There is enough material for teaching purposes without undermining the general physician. If a campaign of education was undertaken by which dispensaries and hospitals compel those who can afford to pay, to do so (the patient) would soon learn that pay they must, and if "pay they must" they would rather go to their own family physician, upon whom they can depend. They surely would not give themselves over for experiment to the average dispensary physician who is, as a rule, incompetent and is there to learn.

As a matter of fact the rule is that as soon as an attending physician of the dispensary acquires a practice of his own wherein he can make a legitimate and honest, comfortable living he resigns his position at the dispensary. In regard to scientific work done at these dispensaries it is sufficient to say that no physician can treat on the average of more than six patients an hour and do it with any degree of scientific accuracy. We can conclude the subject of dispensaries by saying that there is neither charity nor scientific work done by them. No physician as a rule accepts a position on the dispensary staff with a view of doing real charity work. Some, however, do good work in order to learn something, but again that is not charity.

OTHER INSTITUTIONS.

In regard to the staff of hospitals the same may be said as of dispensaries, only that there is better organization and more equipment but again we can emphasize the fact that none of the attending men either at the Cook County Hospital or the Eye and Ear infirmary have attended with a *view of doing charity work but merely do so for self-aggrandizement.* We refer the members to this subject as treated in the symposium, December 10, 1913. Any one can go to the County Hospital and have salvarsan injected if he will pay for the cost of the drug. At one time there were dozens of patients well able to pay in the County Hospital who were treated with salvarsan and thus deprived the really poor of legitimate service, because the hospital was overcrowded. At the Eye and Ear Infirmary all that is required is that the patient raise his right hand and say amen to an oath that the average patient does not understand and many are operated on at this institution who are worth a great deal of money.

EXTENT OF ABUSE.

We here quote from an article which appeared in the *Medical Economist*, volume 7 No. 5, page 264-268, May 12, 1912:

There is first the abuse of dispensary charity by a host of people who could and would pay a physician in private practice for medical service if they were not supplied with them without question at many of the institutions created and supported for the benefit of the really poor. We certainly cannot blame the state for this condition of affairs. It has done all that can be expected from it in the interests not only of the deserving poor, but also of the private physician who has to live by his professional work and who has spent many years of study and the cash capital

necessary to fit himself for his responsible work in compliance, with the very severe and rigid terms required by the state before he is permitted to practice his profession and earn a livelihood thereby. Here is the law of the state enacted for the purpose of preventing the abuse of Dispensary Charity. Section 35, Chapter 369, Law of 1899. "Any person who obtains medical or surgical treatment on false representation from any dispensary licensed under the provision of this act, shall be guilty of a misdemeanor and on conviction thereof shall be punished by a fine of not less than \$10.00 and not more than \$250.00. (Imprisonment until fine be paid may be imposed. Code Crim. Pro. No. 718.)" So the law exists, but it is not in actual operation. The fault is with the system of inquiry into the financial circumstances of persons applying for free treatment at the dispensaries. As a matter of fact, inquiry at the dispensary desks is only nominal. The attending physicians have no time to make inquiries, or if they do *they render themselves liable to censure by the hospital administrations, for hospitals and dispensaries are ever trying to out rival each other in the number of patients treated. Free medical service to persons able to pay is an injustice to the community, to societies who furnish the means for the support of charitable institutions, to the dispensary physicians who do professional work without compensation, to physicians who do private practice who have to earn their livelihood through their professional practice, and last but not least, to the needy and deserving poor who would receive better, because more individual attention and treatment by dispensary physicians not so overcrowded with work as they are at present. Fully 40 per cent of dispensary patients are actually in similar financial circumstances to the majority of patients who make up the circle of practice of the general practitioner and not a few have on income greater than many a physician himself!* This form of graft practiced on charitable institutions maintained by public or private funds, and on the medical profession in private or dispensary practice is certainly an evil that must be abolished some time and somehow. *There is simply no excuse for its existence.* Another evil seriously affecting the economic welfare of the physician is growing up more and more through the activity of the New York Board of Health. It no longer confines itself to its legitimate and original sphere of enforcing the laws of public sanitation and hygiene, or of diagnosing certain diseases by laboratory tests, etc. It has become in more than one way a *privileged competitor of the physician in private practice.* It has practically, if not legally, taken from him nearly all cases of vaccination. It not only opens up dispensary after dispensary but even sends out physicians and nurses to the bedside of patients without taking any more trouble to limit the bestowal of such public medical charity to the really poor than do the hospitals or dispensaries. Against such an unwarrantable encroachment, the medical profession should enter an earnest and vigorous protest. One more evil I shall refer to which deserves attention. There exists as yet no uniform basis of reciprocity or mutual recognition of state license or medical college diplomas conferring the right to practice medicine between the different states. Eleven states do not reciprocate at all. New York only reciprocates with seven other states. In the absence of reciprocity with any state or with certain other states, a physician, no matter from what college he has graduated or how long he has been in actual practice, is required to pass a written examination before a state board of medical examiners which is virtually a repetition of his college examination for his degree! It is needless to mention that no physician, no matter how good a practitioner he may be, is able to pass such an examination without thorough and systematic review and preparation in the theoretical details of all branches of medicine which often requires months of study. The examiners of medical state boards would probably fail themselves to answer satisfactorily their own examination papers without such previous preparation if they were candidates for licenses to practice medicine before a board of medical examiners of another state! As long as there exists no general reciprocity in regard to diplomas or licenses between all the states, which would be the most reasonable and fairest attitude, a clinical examination in the presence of actual patients

only should be required of physicians. Their college diplomas should be accepted as a sufficient proof of a systematic theoretical knowledge of the science of medicine. Many a physician struggling hard to get along in an overpopulated state might do well and become prosperous in one of the younger states of our vast country. As regards Greater New York, there is no doubt that more physicians would go away than physicians from other states would come here to try their fortune. The high cost of living in New York would more than equalize matters in regard to such eventual new competitors. I think that there is no doubt in the mind of the majority of New York City physicians that they have many justified grievances as regards the unfavorable economic conditions and circumstances under which they have to make a livelihood today through the practice of their profession. And let it not be forgotten *an economic improvement for the physicians means also an improvement in the medical service rendered to the average patient. A man depressed by financial care and worry in the struggle for existence is not the best man to bring relief and help to the suffering sick.* It is liable to rob him of his energy and love for his responsible work. And yet the majority of patients require the service of the physicians often in the middle of the night, not of the surgeon or specialist. Nor is this all. To keep abreast of the modern advancement of the science and art of medicine it requires ever more cash investment for modern equipment for efficient practical work, such as books, professional periodical literature, periodical post-graduate courses, instruments, apparatus or other office outfit than almost any other business or profession. Without some surplus in the financial income over the necessary expense for our daily life such extra professional expenditures are impossible. *This tends to lower the scientific and professional status of the average physician, the average patient being again the greater loser.* And last, but not least, just as civilization in a country is measured by the culture and material condition of the majority of the people, so the respect that a profession commands depends on the professional quality and material welfare of the majority of its members!

THE CHICAGO BOARD OF HEALTH.

Also treats diphtheria, scarlet fever, etc., without regard to the welfare of the family physician and even uses political methods to deprive these patients of treatment by their own physician and often overcrowds the County Hospital with such patients who are well able to pay for treatment, thus depriving the deserving poor of sadly needed care. Vaccination is also done by the wholesale without giving the people a chance to be vaccinated by their own family physicians who are responsible to their patients for accidents or complications that may arise. The average patient wants his own physician and especially among the foreign element are they frightened into being vaccinated and treated by the school physician, who, by the way, is a general practitioner and may have just come from a contagious call and is spreading this infection among the school children. They also administer antitoxin to any one, able to pay or not, and as regards laboratory work, they have almost succeeded in putting the private pathologist and bacteriologist out of business.

COMPULSORY CHARITY AND DEAD BEATISM.

So well aware is the general public of the fact that the physician goes wherever he is called, whether he receives pay or not, that there is an alarming increase in the number of "Dead Beats." It is surprising how many people who are fairly honest and pay all other just debts owe a doctor bill. This is a direct result of medical charity abuse, because the

same people know that if the physician will not treat them they can appeal to any dispensary or hospital and they will receive free treatment. It will not surprise you either when the statement is made that among the most flagrant "Dead Beats" are the corporations who will tell you in case of accident, "Now, doctor, you take care of this case until he is well and we will take care of you." After the patient is well and he appeals to this corporation for his promised remuneration, he is told that no such "written" agreement has ever been made and the result is that the physician receives nothing. Moreover, corporations, insurance associations and undertakers will not hesitate to call on a physician for information regarding a case that is under question or litigation and never offer the physician pay for his time and trouble. The average physician is fool enough and *unethical enough* to give this information freely although according to the morals of the profession whatever information he has *concerning his patient is the property of the patient* and ought to be confidential as well as personal, but the corporations know that the doctor is an easy mark and willing to do this. Thus if medical charity abuse exists we are to blame.

MONEY IN THE HANDS OF THE SOCIETY FOR THE USE OF THIS COMMITTEE.

Some years ago money was collected by a former committee with the promise that if a sufficient sum was not raised to carry out the scheme as then proposed as the remedy for medical charity abuse this money would be returned to the donors. This money is still in the hands of the treasurer of the Chicago Medical Society and something should be done with it. Either it should be returned or else we should ask for permission to use it for the purpose of helping our members stamp out the various abuses heretofore mentioned, although the money may not be needed in the remedy as proposed.

THE REMEDY.

"It does not take much strength to do things, but it requires great strength to decide on what to do."

From what has been said here and from the previous article published in the CHICAGO MEDICAL RECORDER, February, 1914, it will be seen how extensive medical abuse is. The vast extent of it has frightened all the previous committees into believing that it was a Herculean task to try to minimize if not eradicate this cursed abuse, which is a curse, not only to the medical profession, but to the public at large. The quotation at the head of this chapter is the thing to follow. *If we really want medical charity abuses eradicated we surely can do so.* True we may not apply the proper dose to begin with, but if we do begin to work we shall soon find out where the errors are. Surely in this case we cannot do any harm and there is every reason to believe that we can do a tremendous amount of good. This committee firmly believes that the remedy here outlined if applied conscientiously and strictly in accordance with the "Doctor's orders" success must follow. The treatment is necessarily varied and depends upon the

cause. To begin with let us emphasize that the *remedies are in our possession and are well known.* It is incumbent on the profession to apply them with a good conscience. In the Constitution of the Illinois State Medical Society is the following clause:

The purpose of this Society shall be to extend medical knowledge and advance medical science; to elevate the standard of medical education, and to secure the enactment and enforcement of medical laws; *to guard and foster the material interests of its members and to protect them against imposition;* and to enlighten and direct public opinion in regard to the great problems of state medicine, so that the profession shall become *more capable and honorable within itself and more useful to the public* in the prevention and cure of diseases and in prolonging and adding comfort to life.

We would also call attention to an article appearing in the August 29 number of the *Saturday Evening Post*, where a layman says that we cannot hope to have any scientific progress in the practice of medicine and surgery unless we teach the medical men not only to earn more money, but to collect what they do earn and have a regular business system relating to credits. We have an efficient remedy for "dead beats." If each member would send in the names, addresses, etc., of his "dead beats" to the office of the Chicago Medical Society we could list them in a comprehensive filing system. If a physician is called to see a new patient he has but to telephone to the Chicago Medical Society and get the information required. If the physician fails to do this and is beaten out of his fee then he alone is to blame. This is in accordance with the constitution of the Illinois State Medical Society and is a credit system as Bradstreet's and Dun's is to business, and every member should be granted protection of this kind. In regard to dispensaries and hospitals, if we would only enforce our by-laws quoted here in full, page 19, Bulletin of Chicago Medical Society, May 13, 1911.

Section 8. Dispensaries shall be for the treatment of the indigent only. No patient shall receive more than one week's treatment in the dispensary until such patient has been certified and recommended by the investigation bureau as a worthy patient for free treatment. Every dispensary shall report each day to a central organization composed of the Bureau of Charities, the Chicago Relief and Aid, or the Jewish Relief and Aid, or the Children's Relief and Aid the names and addresses of all persons applying for treatment, and no person shall receive further treatment if adversely reported by the central organization. Operations of election shall not be performed before being duly reported upon by the central organization of investigation.

Section 9. No member of a hospital staff shall give professional service to the employees of any corporation or association of any kind, *or to any individual able to pay unless such attending physician receives a just fee for the services rendered.* If any hospital requires the attending staff to violate the letter or intent of this section, the facts shall be published in the official *Bulletin* of the Chicago Medical Society and such hospital shall be considered unworthy of the support of the profession.

Section 10. No member of this Society shall agree or contract to render professional services to any corporation, firm, lodge or association of any kind for a less sum than the ordinary and just fee for the services rendered.

Section 11. Any member of the Chicago Medical Society who after June 1, 1910, violates any of the provisions of the foregoing sections shall upon proof before the Ethical Rel-

tions Committee be subject to discipline as determined by said committee.

The only change made in the foregoing sections is that we have our own investigating bureau, consisting of publishing the service cases in the *Bulletin* so that all of our members are kept informed.

In addition to this are the several resolutions passed last year by the Council quoted in the early part of this paper. We will repeat if we follow these by-laws and act accordingly we will go a long way toward eradicating not only the medical charity abuse but also the medical man who is hypocrite enough and so dishonest as not to abide by the by-laws of this organization which he has pledged to do. Our attending men at dispensaries and hospitals should be paid. Then and then only will it be that real charity work will be done and truly scientific treatment be accorded. The philanthropists are beginning to realize that charity work cannot be done by the wholesale or *en masse* and are advancing personal service work known as social service. They raise money to pay these social workers who receive a fair salary. They would also raise the money to do real medical charity which is constantly taught at college, but as soon as we graduate we see what a fraud that is in our hospital and dispensary work. *No physician, except one who is a millionaire, and does not have to practice for a livelihood can conscientiously do real scientific medical charity work.* The attending men at the Cook County Hospital should be full time paid men. Then will there be no object in abusing the privileges of that hospital. As it is now, many attending men know that wealthy people are being treated there and they even take part in encouraging their treatment so as to have a "stand in" with the politicians. The same can be said of the Board of Health, Eye and Ear Infirmary and all other institutions that they cannot do honest and conscientious work unless they hire full time paid men. Then we may expect these men to become efficient in their special lines and can be well capable of writing scientific articles based upon their work that will advance scientific medicine in this country and at the same time will be based upon honest and conscientious observation. It may be argued here that in doing this extra work in regard to deadbeatism and the reporting of service cases in hospitals that an additional clerk will be required in the office of the Chicago Medical Society. I believe it is due to the members of the society to have this done for them out of the membership fee that they pay, especially now that our *Bulletin* is nearly self-sustaining, and if we do this conscientiously we can enroll into our membership every ethical practitioner in this county, and if other counties will do the same we will then have a united profession in this state. This will be copied and we will have a united profession in this entire country. Besides there is enough money in the fund subscribed to this committee to pay a clerk for the next two years and we are sure if we write to the subscribers they will

agree that it be used for this purpose. In regard to hospitals and dispensaries if we cannot get paid staffs we can at least regulate them by a committee. *If all hospitals and dispensaries were closed today the poor would not suffer, on the contrary they would be treated by the physician in their respective neighborhood who understands their language and can sympathize with their environments, as private patients and not merely as cases for the purpose of statistics.*

Your chairman has worked faithfully on this subject, has tried to get the co-operation of all the members and it seems that so far the membership at large is *sufficiently willing to back this movement if our leaders were only sincere and would help spread the propaganda of this gospel.* He now therefore wishes to terminate his connection with this committee, hoping that the work thus started will get into the proper hands and will receive the sincerest co-operation of all the members, and especially the so-called "well-known" men. He further hopes that no one shall be appointed on the committee who is connected with institutions that foster this abuse and no one who is profiting by medical charity abuse.

Respectfully submitted,

BENJ. H. BREAKSTONE, B. S., M. D.,

Chairman,

W. F. VON ZELINSKI, M. D.,

Secretary.

ENGLEWOOD BRANCH.

The October meeting of the Englewood Branch was held Tuesday evening October 16, 1914, at the Englewood Hospital. This was our opening meeting and proved a great success, both as to attendance and as to the quality of the papers presented and the discussions. President Dr. Joseph Sherlaw presided and the following program was presented:

1. Recent Advances in the Diagnosis and Treatment of Pulmonary Tuberculosis, Eugene J. O'Neill.
2. Bone Tuberculosis, Charles A. Erickson.
3. Glandular Tuberculosis, Christian D. Hauch.

The papers were extremely well written, being up to the minute in every respect.

Dr. Frederick A. Besley in opening his splendid talk stated that the first and all important factor was an early diagnosis, that surgical tuberculosis was secondary and that the medical man must decide how much tuberculosis there is in the body, stating that surgical interference is a relative proposition, it being useless to remove a few tuberculous glands and leave more infection in the lung. He spoke of artificial pneumothorax, stating that the gas does not last long. In this connection he called attention to Sauerbrook's method of doing a resection from the 1st to the 11th rib and allowing the chest to collapse, the condition remaining permanent. Besley does not recommend this method, but thought it worthy of consideration. In bone tuberculosis he said that the application of surgical treatment depends on tuberculosis in other

parts of the body. He spoke of Beck's paste and said it should never be used unless a sequestrum was excluded by X-ray examination. He spoke of the hyperemia treatment of Bier, that it had not met with much favor in his hands, but that he had probably not carried out the technique properly. He called attention to the use of the X-ray in the diagnosis of tuberculosis, stating that it was the best method in early bone cases. He had found X-ray men frequently wrong in diagnosing a lesion as tuberculous; that syphilis, osteomyelitis, etc., had often been mistaken for tuberculosis. In the use of tuberculin he had little faith and had not seen any good. In this connection he called attention to the work done by Dr. Kendall with his fat free organisms and thought that perhaps some good might come from it, but that his work was based on animal experiments.

Dr. Frederick A. Tice opened the discussion from the medical standpoint and a more thorough and convincing exposition of this subject could not be asked. I regret that it is impossible to give a detailed report of his discussion. He spoke mostly from personal experiences and his conclusions were based on cold clinical facts as he found them. In the use of tuberculin, especially the filtrate, he had little or no faith; that if any good is to be obtained it must come from the use of the bacillus, as the bacillary emulsion of Koch, or a vaccine. Even as a diagnostic agent tuberculin should be supplanted by other methods, careful examination, X-ray, etc., and that the Abderhalden reaction might prove to be of great value in the future. He spoke at length on immunity, how it was established in early life and in this connection spoke of Webb's work in endeavoring to establish immunity by the use of attenuated germs. The question of prognosis, he said, was largely a matter of determining if the patient had the proper immunity.

Others who entered the discussion and brought out interesting experiences were Drs. Charles H. Miller, Mark Goldstein, J. B. Haerberlin, C. Hubart Lovewell, Julius H. Hess, J. G. Campbell, Walter H. Buhling and others.

Those who missed the meeting missed a rare treat. The attendance was 105.

ARTHUR G. BOSLER, Secretary.

FULTON COUNTY.

The seventeenth annual meeting of the Fulton County Medical Society was called to order at 2:00 p. m., Oct. 6, 1914, in the Auditorium of the Y. M. C. A. building in Canton by President Beatty.

On motion the business part of the meeting was postponed until after the scientific session in order to permit some of the attendants to hear the papers and get home on the early trains. Program:

"Treatment of Urethral Strictures," Dr. C. S. Stremmel of Macomb.

Treatment of "Cardiac and Renal Dropsies," Dr. John Weatherson of Chicago.

"My Late Experience in the European War Zone," Dr. C. B. Horrell of Galesburg.

"Some Points of Interest in Connection with Carcinoma of the Alimentary Tract with Special Reference to the Colon and Recto-sigmoid," Robt. Hanna of Peoria.

All of these papers were freely discussed and the meeting was readily admitted to be the most profitable in the history of the society.

A motion by Drs. Coleman and Cluts was unanimously adopted that the secretary transmit a vote of thanks to Drs. Stremell, Weatherson, Horrell and Hanna for their very valuable papers.

Drs. Shallenberger, Cluts and Simmons, auditing committee, reported that they had examined the books and report of the secretary-treasurer and had found them correct.

The secretary reported that he had collected \$283.50 during the year.

During the year four members had withdrawn or moved, two had died, five were dropped for non-payment and eight were behind with their dues, leaving a total of 57 members in good standing.

The following officers were elected: President, Dr. C. E. Howard of Lewistown; first vice-president, Dr. L. R. Chapin of Canton; second vice-president, Dr. W. B. Gray of Breeds; secretary-treasurer, Dr. D. S. Ray, Cuba; necrologist, Dr. P. H. Stoops, Ipava; membership committee, Dr. E. G. Davis, Lewistown; censor, Dr. P. S. Scholes, Canton; state legislative committee, Dr. W. S. Strode, Lewistown; A. M. A. Public Health and Education, Dr. C. D. Snively, Ipava; delegate, Dr. C. D. Snively, Ipava.

The following resolution was adopted.

Deeply deploring the early demise of our fellow worker and member of the Fulton County Medical Society, Dr. W. D. Flack, and recognizing the merits of our friend and brother physician, therefore be it

Resolved, That we hereby publicly express our appreciation of his merits as a physician and a gentleman;

That we recognize that Dr. Flack was a physician of excellent qualifications, both in natural ability and acquirements, for whom we would expect more than ordinary success;

That we recognized in him the faithful friend, the jovial companion, the man of honor and integrity and the excellent gentleman;

That we feel his loss more because his death was untimely, and be it further,

Resolved, That we hereby convey to the relatives of Dr. Flack our deepest sorrow and sympathy in this their great affliction and that a copy of these resolutions be sent to said relatives, published in the ILLINOIS MEDICAL JOURNAL and recorded in the minutes of this society.

P. H. STOOPS,
J. C. SIMMONS,
S. A. OREN,

Committee.

The following visitors were present: Dr. John

Weatherston of Chicago, Dr. C. S. Stremmel of Macomb, Dr. C. B. Horrell of Galesburg, Dr. Robt. Hanna of Peoria and Dr. Wells of Glassford.

The following members were present: Drs. Adams, Allison, G. S. Betts, W. H. Betts, Beatty, Boynton, Cluts, Chapin, Coleman, Davis, Dehms, Ewan, Goodwin, Gray, Howard, Keller, W. D. Nelson, Oren, Putman, Parks, Price, Ray, E. W. Reagan, T. H. Reagan, Scholes, Simmons, Strode, F. A. Smith, Snively, Shallenberger, Stoops, Whitlock and Zeigler. Total, 35.

Adjourned,

D. S. RAY, Secretary.

GREENE COUNTY.

The regular meeting of the Greene County Medical Society was held in the city council room at White Hall, Friday, September 11. Present, Drs. Howard Burns, J. J. Ehresmann, E. E. Jouett, and H. C. Converse of Carrollton, F. H. Russell of Eldred, E. G. Proctor and C. B. Foreman of Kane, R. O. Hawthorn and H. W. Smith of Roodhouse, H. W. Chapman, L. O. Frech, F. N. McLaren, A. W. Foreman, E. J. Peek, and H. A. Chapin of White Hall.

Meeting called to order at 11:30 a. m. by President F. N. McLaren.

The question of inviting speakers from other societies was raised by the secretary and on motion of Howard Burns the program committee was requested to make such arrangements when thought advisable. The motion was unanimously adopted.

The following amendment to Section 2 of Chapter 2 of the by-laws was proposed by Dr. Frech to be acted upon at the next regular meeting.

Meetings shall be held on the second Friday in February, April, June, August, October and December.

Drs. Hughes, Lewis and Hawthorn were elected to membership.

Dr. Howard Burns then read a paper on the "Treatment of Chronic Interstitial Nephritis," which was very interesting and instructive and brought forth an interesting discussion.

Society adjourned for dinner at the City Hotel at 1 p. m.

Called to order at 2 p. m. by Vice-President L. O. Frech.

Dr. Ehresmann then read a paper on "Serum Therapy," and there was considerable discussion as to the present status of serums. At this time the vice-president retired and asked Dr. Chapman to act as chairman.

On motion of Dr. Burns, the president pro tem and the secretary were instructed to draft resolutions regarding criticisms of the ILLINOIS MEDICAL JOURNAL, and the following resolutions were unanimously adopted:

In view of the fact that the JOURNAL of the state society is published at such a great annual loss to the treasury; be it

Resolved, That it is the sense of this society that

the articles published in this JOURNAL should be limited to those papers actually read before the State Society, business of the House of Delegates and its committees, and that notices of county society meetings should not occupy more than half a page each; and be it further

Resolved, That a copy of this resolution be sent the JOURNAL for publication.

H. A. CHAPIN, Secretary.

HANCOCK COUNTY.

The Hancock County Medical Society met in Carthage Monday, Oct. 5. Carthage physicians entertained the doctors from out of town at a luncheon at Hotel Cutler, after which they adjourned to the assembly room of the courthouse.

Miss Elizabeth Smith, member of the senior class of Carthage high school, gave a reading, "The Bill of the Great Doctor." This is the selection on which Miss Smith won first prize in the county high school contest last spring and was thoroughly enjoyed by the medical men.

Dr. Kreider of Springfield, formerly editor of the ILLINOIS MEDICAL JOURNAL, candidate for congressman at large, gave an excellent address on "The Diagnosis and Treatment of Disease By the Most Modern Methods." He took up the history of medicine, showing how it had developed from the superstition and mysticism of the past into the exact and scientific methods of today. He spoke of instruments of precision and laboratory methods now in use which make positive diagnosis possible. Dr. Kreider illustrated his talk with blackboard outline and use of microscope. This subject was discussed by Drs. Jenkins, Edwards and others. Dr. Bain, former bacteriologist of state laboratory, gave practical suggestions for laboratory work and Dr. Trapp spoke of importance of keeping a written history of cases.

Dr. Collins, a prominent surgeon of Peoria, gave a lecture on surgery of the gall bladder, illustrating with stereopticon views.

At the close of the program several interesting clinical cases were presented by members of the profession. Dr. Bouseman of Fountain Green was elected to membership. Dr. Camp of Schuyler county shows the true progressive spirit in that while there is no active medical society in his own county, he enrolls in Hancock county and comes across the country thirty-five miles to attend the medical meetings and is seldom absent.

Those in attendance were Drs. Kreider, Trapp and Bain of Springfield, Dr. Collins of Peoria, Drs. Gray, Gillfillan, Wolenwebber, Armentrout and Sherlock of Keokuk, Drs. Callihan, Ferris, Jenkins, Blender, Parr, Pumphrey and Fraer of Carthage, Drs. Medley and Emmerson of Lomax, Drs. Kelly of Ferris, Edwards of Warsaw, Anderson of Elvaston, Irwin of Plymouth, Loomis of Burnside, Dr. Camp of Brooklyn and Dr. Stowe of Basco.

LAKE AND McHENRY COUNTIES.

The first joint meeting of Lake and McHenry County Medical Societies was called to order at the Riverside Hotel, in McHenry, Friday, Sept. 25, 1914, at 10:30 a. m.; Dr. A. B. Smith, president, McHenry County, presiding at the forenoon session and Dr. Taylor, president, Lake county, at the afternoon session. By previous arrangement all other business was dispensed with the following program proceeded to at once:

PROGRAM.

Welcome address, N. L. Seelye, M. D. (Harvard).

Paper, "Some Toxemias of Pregnancy," L. H. Tombaugh, M. D. (Waukegan).

Paper, "Bone Surgery," Dean Lewis, M. D. (Chicago).

Paper, "Trichnosis," E. Windmueller, M. D. (Woodstock).

FRIED CHICKEN DINNER.

Paper, "Report of Some Surgical Cases," J. C. Foley, M. D. (Waukegan).

Paper, "Report of Some Medical Cases," D. G. Wells, M. D. (McHenry).

Present were Drs. Ambrose, Boughton, Foley, Jolley, Kalowsky, Roemer, Taylor, Tombaugh and Wright from Lake county; Anderson, Baccus, Eshbaugh, Foster, Francis, Freeman, Goddard, Gooder, Hull, Johnson, McLane, Nye, Peck, Renie, Seelye, Smith, Statler, Wells, West, and Windmueller of McHenry county, and Dean Lewis, M. D. of Chicago.

The following ladies responded to the special invitation of the society: Mesdames Bouton, Freeman, Johnson, Roemer, Seelye, Smith, Tombaugh, West and Windmueller.

SOME TOXEMIAS OF PREGNANCY.

Recent researches have demonstrated that digestion is not completed in the alimentary canal, and there is reason to believe that food particles have to be united with their special antibodies after entering the circulation. The autointoxication of pregnancy is probably caused by interference with the more minute combinations of digestion. Among the toxemias of pregnancy should be included pruritis, abnormal tastes in the mouth, salivation, so-called physiologic vomiting, hyperemesis chorea and acute yellow atrophy of the liver. There is more reason for listing these ailments under the head of autointoxication than under that of reflex irritation or nervous excitability. Certain characteristics are common to all forms of toxemia, constipation, overeating, indulging in indigestible articles of diet, etc. It is undoubtedly true that eclampsia is a toxemic disease and that the sensitive agents, or toxins, have their origin in the food ingested. Eclampsia begins with constipation, headache, bilious attacks, edema, and albuminurea and culminates in the convulsive seizure. Treatment instituted for its cure should be directed primarily to the alimentary canal. Albuminuria is the only constant symptom present in eclampsia. It is usually at or near full term that eclampsia occurs,

but it may occur as early as the sixth month of pregnancy, or be delayed for some hours or even days after delivery. Eclampsia, which starts or continues after delivery is usually the most serious form. The urine of a pregnant woman should be frequently examined and if it becomes scanty and highly albuminous active measures of treatment should be instituted without delay. In the convulsive seizure a half grain of morphia should be given hypodermatically, the stomach should be washed out and rectal lavage persisted in until a satisfactory evacuation is procured. Give hot water freely, and if the patient cannot swallow, hypodermoclysis, should be resorted to. Do not give food for twenty-four or forty-eight hours after patient recovers consciousness. Toxemia and not inanition is the cause of a fatal termination. Chloroform is harmful as is also chloral and veratrum viridi, but morphia can be used freely and large doses of bromides are usually indicated. In pernicious vomiting, proctoclysis is the most valuable remedy we possess. Morphia, sufficient to keep the patient quiet and the rectal tube kept in place for twelve to fifteen hours at a time; introduce one-quarter pint of normal salt or sodium bicarbonate solutions every hour until the tongue moistens and vomiting ceases. If twenty-four to thirty hours of this treatment has not produced marked relief empty the uterus as expeditiously as possible.

Following his paper, the above abstract of which was kindly furnished by the author, Dr. Tombaugh gave a talk for the benefit of the ladies, in which he made plain the truth relative to the "Twilight Sleep" so widely advertised in certain periodicals of late.

Dr. Dean Lewis reported a number of cases illustrating the gross and microscopic pathology of some fractures and neoplasms of bone together with the treatment and results as shown in skiagrams.

The following abstract kindly furnished by Dr. E. Windmueller of Woodstock is based on a series of thirty-two cases of trichinosis in McHenry county:

These patients had all partaken of sausage made from the meat of an old hog. The doctor stated that isolated cases could easily be mistaken for some of the acute infections, especially typhoid fever. The principal symptoms noted were, in the order of their occurrence, epigastric pains, nausea, vomiting, gastro-enteritis, temperature from 100 to 104, edema of the eyelids, face and hands, about the 8th day; muscular tenderness and dysphagia; in some cases fixation of the eyeball. The blood picture showed 75 per cent eosinophilia in some of the cases. Myriads of trichinae were demonstrated in a piece of muscle from one of the patients. He called especial attention to the diagnostic value of edema of the eyelids, the universal absence in trichinosis of edema of the labia or the scrotum, the muscular tenderness and the blood picture. All the patients eventually recovered.

The discussion was characterized by a report of his own case by Dr. C. M. Johnson of Harvard, Ill.,

who successfully passed through an attack of trichinosis.

The fried chicken dinner was pronounced a grand success, and after it the program was concluded by a report by Dr. J. C. Foley of a number of recent cases of poliomyelitis and Dr. D. G. Wolls' demonstration of a medical case for diagnosis by the members of the society.

N. L. SEELYE, M. D., Secretary,
(McHenry County).

C. S. AMBROSE, M. D. Secretary,
(Lake County).

ROCK ISLAND COUNTY

The Rock Island County Medical Society met at Manufacturers' Hotel, Moline, Tuesday evening, October 13, 1914. Minutes of August meeting read and approved. Application of Dr. Nellie Abel of Moline was presented for final action and Dr. Abel elected to membership. Report of hospital committee heard and accepted. Application of Dr. F. J. Conroy was read and committee, Love, Craig and Lachner appointed to investigate. Announcement was made by the president of the appointment of standing legislative committee, Seids, Leipold, DeSilva, Eddy, and Chapman. Appended resolutions heard and adopted:

WHEREAS, The Illinois Medical Journal, in filling the role of official organ of the Illinois Medical Society, has been in the past and is at present maintained at a distinct monetary loss to the society, and,

WHEREAS, Very much of the material at present entering into the make-up of the JOURNAL is entirely foreign to the state society or to any of its transactions; therefore be it

Resolved, That the Rock Island County Medical Society does hereby record itself as being in favor of keeping the JOURNAL deficit at as low a figure as is possible, and in the furtherance of the effort; be it

Resolved, That we recommend that the state society JOURNAL be used only as a state society organ and that the articles published therein be limited to those papers actually read before state society meetings, and to the business of the house of delegates and of its committees, and of the several component societies; and be it further

Resolved, That copies of these resolutions be forwarded to the ILLINOIS MEDICAL JOURNAL and to the council of the Illinois Medical Society, with the request that due publicity be given.

The program of the evening consisted of two papers, "Albumin in the Sputum," by Dr. G. D. Hauberg of Moline, and "The Value of the Different Methods of Examination in the Diagnosis of Early Tuberculosis," by Dr. W. W. Dicker of Chicago. Dr. Hauberg finds a routine testing for spital albumin to be of appreciable value for the general practitioner. Dr. Dicker emphasizes the importance of proper care in the physical examination of the patient himself; laboratory findings to be used as adjuncts and not as leads. A rising vote of thanks was extended to Dr. Dicker.

W. D. CHAPMAN, Secretary.

WINNEBAGO COUNTY

October 7, 1914.

The Woodford County Medical Society met in special session in the city hall at Minonk, July 10, 1914, at 2 p. m. Members present were C. F. Banta, N. B. Crawford, W. C. Cotton, R. E. Gordon, H. A. Millard, W. S. Morrison, F. C. Nichols, F. W. Nickel, F. Seidl, James Tweddale, F. W. Wilcox. Visitors present were W. O. Ensign, of Rutland, and T. W. Gillispie, of Peoria. The following subjects were presented and freely discussed: "Chronic Urethral Infection and Complications," T. W. Gillispie, of Peoria; "Septic Endocarditis," R. E. Gordon, of El Paso.

At 6 o'clock adjourned to banquet at the Woodford Hotel. This banquet was given by the society in honor of Drs. James Tweddale, of Washburn, and N. B. Crawford, of Eureka, the two oldest members of our society and the oldest practitioners in the county. At 7 o'clock we reassembled in the city hall, where addresses were given by Drs. Tweddale, Crawford and Ensign, giving their experiences as early practitioners in this vicinity and reviewing the progress and development of the practice of medicine and surgery. The public was invited to this part of the meeting and the talks were much enjoyed by all present.

H. A. MILLARD, Secretary.

Regular Meeting, October 6, 1914.

The Woodford County Medical Society met in semi-annual session in the city hall at El Paso, October 6, at 10 a. m. Meeting called to order by President W. S. Morrison. Those responding to roll call were: L. E. Bratt, F. E. Briggs, W. C. Cotton, R. E. Gordon, F. H. Henderson, H. A. Millard, W. S. Morrison, J. F. Page, F. W. Wilcox. Visitors present: E. S. Gillispie, of Wenona, Councilor of the second district, and W. O. Ensign, of Rutland.

The following program was given: "Intussusception," F. H. Henderson; "Acute Ileus," W. C. Cotton; "Acute Nephritis," F. E. Briggs. R. H. Smith, of Eureka was elected to membership.

At twelve-thirty adjournment was taken to a complimentary dinner given by the profession of El Paso and it was unanimously agreed that they were royal entertainers.

Reassembled at 1 o'clock for further reading and discussion of papers. A spirit of enthusiasm prevailed throughout the meeting. There is not a sore spot in the county and the dues of all but two members are paid to January 1, 1915.

H. A. MILLARD, Secretary.

WOODFORD COUNTY

The Winnebago County Medical Society held its October meeting on the 13th at Nelson Hotel, Rockford, Dr. E. E. Ochsner in the chair. Members present, 18. Dr. A. W. Christum was admitted into the society as a new member.

Dr. Emil Lofgren presented a case of fractured patella—treated successfully by open operation. The following points were emphasized:

1. Wait until swelling of knee has subsided before operating.
2. Thorough preparation of joint.
3. Removal of dark blood clots and loose bone pieces by thorough irrigation with normal salt solution.
4. Keep fingers out of joint.
5. Rest of limb in a cast from seven to ten days, and then let patient up, gradually—passive motion of patella and joint being instituted every day.

Dr. S. W. Gruntel reported two interesting cases. One, that of Raynaud's Disease; the other, that of an abscess of the lower limb, simulating elephantiasis.

Dr. D. Penniman reported a very interesting case of hemorrhage (neonatorum) treated successfully by injection of the father's blood serum. The case was a serious one and the result brilliant. All cases were followed by discussions.

Last June the society lost one of its younger active members in Dr. Lee O. Scott. At this meeting it was moved and seconded that the resolutions of sympathy to Mrs. Lee O. Scott and relations, as framed by the committee, be recorded on the minutes and that the engrossed copy be sent to Mrs. Scott.

C. M. RANSEEN, Secretary.

Personals

Dr. Vincent J. Cohenour, Joliet, has been elected physician of Will County.

Dr. Robert T. Gilmore has been elected president of the Chicago Gynecological Society.

Dr. Charles N. Hazelton, Morrison, announces his retirement from active practice.

Dr. Wilmot L. Ransom, formerly proprietor of the Ransom Sanitarium, Rockford, has established a new sanitarium at Roscoe.

Dr. A. M. Wickstrom has opened an office at 1000 Belmont avenue, Chicago.

Dr. P. C. Schenkelberger has opened an office at 22 East Washington street, Chicago.

Dr. Otto Herman Rohrlack, 958 North Leavitt street, Chicago, following his recent return from Europe, announces that his practice is limited to obstetrics and gynecology.

Dr. R. H. Willingham of Elizabethtown, formerly secretary of the Hardin County Medical Society, has become associated with Dr. R. L. Kurtz of Neoga.

Dr. H. C. Houser of Chicago has located in Westfield.

Dr. Silas Wier, who has been practicing in Cates, Indiana, has located in West Union.

Dr. R. L. Kurtz, Neoga, has spent several weeks in post-graduate study in anatomy, pathology and surgery at the University and various St. Louis hospitals.

Dr. George C. Amerson, professor of surgery, Chicago College of Medicine and Surgery, announces the change of his surgical clinic from Friday to Tuesday, 10 a. m. to 12 m., at the West Side Hospital.

Dr. Franklin A. Turner announces the removal of his office from Sandwich to 501 Trust Building, Rockford, succeeding the late Dr. Lee O. Scott.

Dr. Edmund G. Sugg, Leland, has sailed for China, where he will enter the employment of that government.

Dr. and Mrs. B. E. LaDue, Ottawa; Dr. Catherine B. Slater, Aurora; Dr. W. S. Hall and family, Dr. and Mrs. H. B. Bailey, and Drs. John S. Sweeney and Alfred N. Moore, of Chicago, have returned from Europe.

News Notes

—At a meeting of the Robert Koch Society for the Study of Tuberculosis at the City Club, Chicago, October 29, the following papers were presented: "Tuberculosis of the Larynx in the Early Stages of Pulmonary Tuberculosis," by Dr. Elmer L. Kenyon; "Symptoms and Diagnosis," by Dr. E. Fletcher Ingals; "Prognosis and Treatment," by Norval H. Pierce. Discussion opened by Dr. George A. Torrison.

—Dr. W. H. C. Smith, superintendent of Beverly Farm Home and School for Nervous and Backward Children at Godfrey, Illinois, has added a 20-room cottage and a heating, light and power plant to his equipment, increasing the capacity of the institution to seventy children.

—One effect of the war has been an increase in postal savings deposits greater in the past three months than in the whole year 1913. Chicago stands second among American cities with 21,659 deposits averaging \$131.

—The Aesculapian Society of the Wabash Valley held its sixty-eighth annual meeting, October 29, at Paris, Illinois. The program follows:

1. "The Tonsils and Tonsil Operations"—J. W. Alexander, Oakland, Ill.

2. "State Medicine"—T. O. Freeman, Mattoon, Ill.

3. "Fractures of Bones of the Feet"—O. W. Ferguson, Mattoon, Ill.

4. "Tubercular Meningitis"—James Miles, Merom, Ind.

5. "Surgical Shock"—

Prevention by the Surgeon—Jos. H. Weinstein, Terre Haute, Ind.

Prevention by the Anesthetist—Chas. N. Combs, Terre Haute, Ind.

6. "Medical and Surgical Millinery"—A. Merrill Miller, Danville, Ill.

7. "Inguinal Hernia of the Vermiform Appendix"—T. A. Bryan, Mattoon, Ill.

8. "Hysteria"—O. O. Alexander, Terre Haute, Ind.

9. "Report and Clinical Demonstration of a Case of Fracture of Twelfth Dorsal and First Lumbar Vertebrae: Laminectomy and Result"—W. F. Willien, Terre Haute, Ind.

10. "The Surgery of Enteroptosis"—Roland Hazen, Paris, Ill.

11. "The Survival of the Unfit"—T. Chester McCord, Paris, Ill.

12. "Cavia Aperea, Medical Martyr"—B. G. R. Williams, Paris, Ill.

President's Address—"Medical Research: Its Revelation and Its Promise"—W. J. Fernald, Frankfort, Ind.

—The past two months have been a busy time for the members of the state and local medico-legal committees, and probably never before has the profession of the state made its desires in the matter of legislation more fully known to the various candidates than at the recent primaries and election. The *Madison County Doctor* for October states some of the subjects on which the profession should be united and insistent as follows: 1. Ample support for the medical department of the State University. 2. Amendment of the medical practice act to place all graduates under the control of the State Board of Health. 3. "One door to the practice of medicine."

—The war spirit is some infectious. A glance at the *News-Letter* of Englewood Branch announces a "Big Fight" at the opening meeting, but it turns out to be a war on tuberculosis. "Nations spend millions upon millions to devise ways and means to kill yet so little to save human life." A supplement to the *News-Letter* of convenient form for reference contains the tentative program for the year's meetings. This plan is not copyrighted and it is worthy of imitation by societies everywhere.

—The Chicago-Winfield Tuberculosis Sanatorium has recently sent out a very attractive pamphlet with illustrations and a description of this institution. A larger book is being compiled for early distribution.

—The Clark County Medical Society held its August meeting at the Narrows on the banks of the Wabash river. The meeting was well attended by the members and their families who did good justice to the fish fry which figured as one of the important features.

—The New York Skin and Cancer Hospital announces a course of six lectures on cancer Wednesday afternoons at 4:15, beginning November 4, by Dr. L. Duncan Bulkley.

—Dr. Veron of Epernay, France, is reported to have charged \$35,000 for operating on a wounded German prince, that amount having been paid as a war indemnity by the people of Epernay.

—"Dr." Orlando E. Miller, who is more kinds of a quack than any other person so far recorded and who was recently convicted of manslaughter in a London court, has an apt pupil, according to the *Chicago Journal*, in one Mrs. Frances Shaw, who "studied" with Miller in England, but who now admits that a Mr. Robert Parker, who is associated with the Burnham firm of architects, is the "second Christ." She is strong for the Magi stuff and can tell you all about it for 50 bones.

—The Chicago Academy of Surgeons held a meeting at the Sherman House, October 23, at which the following papers were presented: "Hyperflexion of the Spine with Multiple Spinous Process Fracture without Accompanying Nerve Lesion," by Dr. Orlando F. Scott. "Surgical Problems and Diagnostic Difficulties of Renal Tuberculosis," by Dr. Phillip Kreissl.

—Dr. Ernest A. Loewinger is doing volunteer work and is one of the surgeons in the Imperial and Royal Military Hospital, Budapest.

—Contracts have been awarded for the construction of the Lutheran Hospital, Moline. The institution when completed will cost about \$40,000, and work is to be started on the building by April 1, 1915.

—The Illinois Board of Health has sent experts to Carbondale to investigate an epidemic of streptococcus sore throat, of which infected milk is supposed to be the cause.

—Work on the new Lutheran Hospital between Rock Island and Moline will commence in the early spring. More than \$40,000 of the \$50,000 required has already been raised.

—The Contagious Disease Hospital, given at a cost of nearly \$100,000 to the Evanston Hospital by James A. Patten, was opened for inspection October 24 and 25. The building is four stories in height, 121 by 42 feet; of brick, fireproof and will accommodate fifty patients.

—The Sisters of Mercy, in a celebration of the sixty-eighth anniversary of their arrival in Chicago, placed a tablet at the Mercy Hospital in memory of the late Ferris S. Thompson, who died in France nearly two years ago, leaving \$300,000 to the hospital.

—The Tri-State Medical Society of Iowa, Illinois and Missouri held its twenty-second annual session at Des Moines, Iowa, October 13 and 14, 1914. The program included papers contributed by the following members of the Chicago profession: Truman W. Brophy, Clarence Wheaton, Arthur M. Corwin, Fred. C. Zapffe, Benj. Orndorff, Thos. H. Kelley, Charles H. Parkes, Charles Gilbert Davis and Bertha Van Hoosen, T. C. Buxton, Decatur, Ill.; A. F. Sloan, Bloomington, Ill.; H. H. Fletcher, Winchester, Ill.

The attendance was large and enthusiastic, and the local profession most hospitable.

The following officers were elected for the ensuing year: Lewis Schooler, Des Moines, Iowa, president; Clarence L. Wheaton, Chicago, vice-president; Charles H. Parkes, Chicago, secretary; Emory Lanphear, St. Louis, treasurer. The next meeting will be held in Chicago during September, 1915.

Many members joined the Society this year and it is in an exceedingly prosperous condition. This society has a notable history and bears the names of the foremost men in these and other states upon its roster of membership. It fills a worthy place in its interest and effort to spread the knowledge of modern surgery and fosters wide acquaintanceship among the men who labor for the physical welfare and health of the community.

—In order to be in position to accommodate the increasing numbers who are seeking admission to The Petty & Wallace's Sanitarium, Memphis, Tenn., larger and more complete buildings are to be erected, and are to be equipped with everything which can be used to advantage in the treatment of those who are addicted to narcotic drugs or alcohol or who are suffering from mental or nervous diseases.

The main building now to be erected will be devoted entirely to the care and treatment of drug addiction, alcoholism and nervous diseases. It will be fireproof throughout and every room will have a private bath. The building will contain a well-equipped gymnasium, and provision will be made for outdoor recreations.

There will be a separate building for the department of mental diseases, and provision will be made for the care of all classes of mental patients.

—Dr. Wm. J. Hickson, director of the Municipal Psychopathic Laboratory, Chicago, advocates the establishment of a colony for morons, sociopaths, feeble-minded and morally weak persons under city, county or state control. He estimates that an establishment to accommodate 1,000 persons could be built for \$900,000, and it would provide a logical place of restraint for the large number of such persons convicted in the criminal courts who now are sent to prisons.

—Voliva, successor of Dowie at Zion City, has threatened the "vile minions" of the State Board of Health with a shotgun if they attempt to inoculate him with vaccination, and he holds the terrors of "excommunication" from his alleged "Church" over his followers who permit vaccination. This is the same relic of the middle ages who recently preached that the "world is flat" and gave the same reasons that were popular in the days of Copernicus. With such a fer-

tile field it is not surprising that the epidemic of smallpox at Zion was reported to number forty cases on November 1. The pity is that so many deluded followers of Voliva must be marked with the sign of his fanaticism.

Public Health

The inalienable right of every child to be well born is the only *raison d'être* of the science of eugenics. And the dispatches from the various European countries now at war stating that the governments involved were advising the recruits to marry before going into battle show, as nothing else can, the desperate need of Europe for men to carry on the business and wars of the future. Many of us had read these dispatches coming one after another without noting their sinister significance. But the *Chicago Herald* rose to the occasion and in an article worthy of Victor Hugo excoriated the policy that would debase the marriage tie: "What matters it that the young wife may never see her child's father again? What matters it that the young father may never see his child? What matters that the whole thing is a mockery of the sacredness of marriage, a travesty on the best in life itself? Breed ere you die!

"And this is the twentieth century! This is Europe! This is religion, civilization, marriage, State policy! Breed before you die! Bring into the world all manner of predestined orphans, many condemned to idiocy, disease and want! The State demands it. Breed before you die; for if ye breed not the nation dies."

Too many persons in authority have assumed that there was some sacred obligation to "increase and multiply," and have therefore magnified the importance of quantity of offspring instead of the infinitely greater importance of quality. No fact bearing on the question of national and individual well being is of greater significance than the showing made by Dr. Drysdale that the *net* increase of population is greater with a comparatively low birth rate with its always accompanying low infant death rate.

The *Herald* article aroused much comment, favorable and critical, but perhaps the best criticism of the European policy was unearthed by Rabbi Schanfarber from Deuteronomy XXIV, 5: "When a man hath taken a new wife, he shall not

go out to war, neither shall he be charged with any business; but he shall be free at home one year, and shall cheer up his wife, which he hath taken."

Marriages

WILLIAM C. BRIDGE, M. D., to Katherine Pleavin, M. D., both of Elgin, Ill., in Chicago, October 7.

HADA M. BURKHART, M. D., Rock Island, Ill., and Martin R. Carlson of Moline, Ill., September 17.

FRANCIS AUGUSTINE COLLINS, M. D., to Miss Laura Carey, both of Chicago, recently.

WALTER CHARLES HAMMON, M. D., to Miss Florence May Nieman, both of Chicago, October 3.

CHARLES HENRY HECKER, M. D., St. Louis, to Miss Sula Anderson of Ottawa, Ill., October 1.

LOUIS GEORGE HOFFMAN, M. D., to Miss Cora Hazel Bryan, both of Chicago, September 15.

CHARLES H. MACPHERSON, M. D., to Miss Lora Frances Anderson, both of Modesto, Ill., recently.

ARTHUR JAMES McCARY, M. D., Chicago, to Miss Arleen Winifred Joannes of Green Bay, Wis., October 8.

HENNING THEODORE MOSTROM, M. D., Geneva, Ill., to Miss Mildred Hinds of Lena, Ill., September 30.

CYRUS F. NEWCOMB, M. D., Champaign, Ill., to Miss Geraldine Bullard of Mechanicsburg, Ill., October 7.

Deaths

ROBERT BRIGGS, M. D. Rush Medical College, 1869; Bellevue Hospital Medical College, 1875; of Clayton, Ill.; died in the Jacksonville State Hospital, September 16, from exhaustion, aged 67.

MAUDE L. DUNN ERSTLING, M. D. National Medical University, Chicago, 1905; died at her home in Chicago, August 31, from infection following an operation, aged 44.

WILLIAM PERRY MARKLAND (license, years of practice, Illinois, 1878); a veteran of the Civil

War and for nearly half a century a practitioner of Cuba, Ill.; died at his home September 13, from intestinal obstruction, aged 83.

UNCLE SAM TAKES A HAND

The national government through the Department of Agriculture has taken official notice that a dangerous and contagious disease, known as bovine tuberculosis, exists among the cattle of the state of Illinois. And in accordance with the facts as known to the federal officers, the Secretary of Agriculture has issued a proclamation declaring quarantine against "all territory in the state of Illinois within the boundaries of the counties of Lake, McHenry, Kane, Du Page and Cook."

The quarantine thus established and effective from and after October 1 of this year, provides that no cattle may be shipped or moved from the counties named, except for immediate slaughter, unless they have been tested with tuberculin by or under the supervision of an inspector of the Bureau of Animal Industry and accompanied by a certificate including a tuberculin test chart showing them to be free from disease.

Cattle shipped for immediate slaughter and consigned to any other state must be shipped in cars placarded in large letters "Cattle for immediate slaughter only" and the same notice in plain type must also appear on all bills of lading accompanying shipments of such cattle. Any attempt to ship cattle from the quarantined counties to any other county in the state of Illinois will subject the county to which such cattle are shipped to the same quarantine regulations as are enforced in the county from which the cattle were shipped.

It should be explained that this action of the federal authorities was made necessary by the conditions which were known to have long existed in the state of Illinois. These conditions were due to the fact that the state, having no law forbidding the importation within its borders, of tubercular cattle, and being also without a law requiring the periodical testing of the dairy herds in the state, has been made the dumping ground for all the condemned milk cows from nearby or adjoining states. In other words, the dairy farmers of Illinois, aided and abetted by the cow buyers or dealers in condemned dairy cattle, have fought the laws that were intended for their protection. And in doing this they have sowed the wind and are now reaping the natural fruits thereof.

How do you like your neighbors? Pretty good people, are they? Keep their premises neat, clean and attractive all the time. Interested in matters that affect the good of the neighborhood and always doing whatever they can to help make things a little better this year than they were last.

And now that we are on the subject of neighbors, what do your neighbors think of you? Do they come to you for help and counsel in matters affecting the health, comfort and safety of the community?

And when you are thus appealed to, do you respond and in such a way as to convince them that you are with them to a finish in any fight that is being engaged in for community betterment? This is the sort of spirit that should dominate our ideas of good citizenship. It is also the spirit that helps to make us all good neighbors, and the places where we live, good neighborhoods.

Book Notices

PRACTICAL THERAPEUTICS. With Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M. D., B. Sc., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College of Philadelphia. New (15th) edition, thoroughly revised and rewritten. Octavo, 998 pages, with 144 engravings and 7 plates. Cloth, \$4.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

Rarely has a scientific book reached its 15th edition. This fact alone shows the popularity of the work and commends it to the profession.

The work has, since its first publication, been one of the best and most popular exponents of therapeutics. The present edition brings the study of therapeutics down to the present time.

The following paragraph from the preface presents the character of the book: "The day has passed for undue therapeutic optimism, and has gone far beyond therapeutic pessimism. This is the era of therapeutic rationalism, when remedies are given, not because they are recommended by, or said to be valuable by, some authority, but because their use appeals to the medical man who has a knowledge of the physiological, pathological, and therapeutic problems to be faced, and can, therefore, judge for himself what remedy is best suited to a given case when he is informed how it acts."

Every medical student and every physician should have this excellent work.

A TEXT-BOOK OF PATHOLOGY. For Students of Medicine. By J. George Adami, M. A., M. D., LL.D., F. R. S., Professor of Pathology in McGill University, Montreal, and John McCrae, M. D., M. R. C. P. (London), Lecturer in Pathology and Clinical Medicine in McGill University, formerly Professor of Pathology in the University of Vermont. Second edition, enlarged and thoroughly revised. Octavo, 878 pages, with 395 engravings and 13 colored plates. Cloth, \$5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

Pathology is the base of both medicine and surgery. To practice either scientifically, presupposes a knowledge of pathology. No subject has been so difficult to teach. No subject has been harder of comprehension for the student.

The authors' manner of presenting this subject is admirable. Much of the subject matter presented is the result of personal research work done by the authors, and comes first-hand. Many schematic drawings make the study of the text much easier, and the photographs and other illustrations present

the subject just as the microscope reveals it. A new chapter on "The More Important Infections and Their Prominent Features" has been added.

In all, it is one of the most up-to-date treatises on pathology of which we know. We recommend the work to all students of medicine as well as to all practitioners.

A TEXT-BOOK OF THE DISEASES OF THE NOSE AND THROAT. By Jonathan Wright, M. D., Director of the Department of the Laboratories, New York Post-Graduate Medical School and Hospital, and Harmon Smith, M. D., Surgeon to Throat Department of the Manhattan Eye, Ear, Nose and Throat Hospital; Clinical Professor of Laryngology and Rhinology, Cornell University Medical School. Octavo, 683 pages, with 313 engravings and 14 plates. Cloth, \$5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

This new work, which has just come to hand, well takes a place among the best on this subject. It is written by men who are perfectly familiar not only with the subject but also the literature.

An important feature is the emphasis laid upon the etiology and pathology of nasal and throat diseases. Treatment, however, is not shortened thereby, and embraces all the latest and newest in this field, making it a valuable work for the general practitioner who may treat nose and throat cases.

The sections on etiology and pathology show that a vast amount of original work in this line has been done by the authors. The volume comprises nearly 700 pages, clear and lucid, well illustrated, and should prove of utmost value to both the general practitioner and the specialist in this field. The mechanical features of the book are excellent.

NERVOUS AND MENTAL DISEASES. By Joseph Darwin Nagel, M. D., Consulting Physician to the French Hospital of New York, Member New York Academy of Medicine, Honorary Member Societe Royal de Belique, etc., Physician to St. Chrysostom's Dispensary. New (2nd) edition, revised and enlarged, 12mo, 293 pages, with 50 engravings and a colored plate. Cloth, \$1.00, net. (The Medical Epitome Series.) Lea & Febiger, Publishers, Philadelphia and New York, 1914.

The contents of this small volume, if mastered, is sufficient to equip one with a good foundation of nervous and mental diseases.

The amount of matter presented is surprising, nothing of value to the student or general practitioner being omitted. As a book for review work, it cannot be excelled. It is supplemented with questions from recent State Board examinations.

AN EPITOME OF PEDIATRICS. By Henry Enos Tuley, A. B., M. D., Late Professor of Obstetrics, Medical Department, University of Louisville; Editor Louisville Monthly Journal of Medicine and Surgery; Late Chairman of Section Diseases of Children, American Medical Association; ex-President American Association Medical Milk Commissions, etc. New (2nd) edition, revised and enlarged. 12mo, 324 pages. Cloth, \$1.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914. (Lea's Series of Medical Epitomes.)

This little volume will be of assistance to the medical student who cannot always find the time to go

deeply into a subject, and it will also serve as a review to the general practitioner. The feeding of infants is given more attention than other subjects. Following each chapter is a list of questions covering the main points studied.

THE PRACTICAL MEDICINE SERIES, comprising ten volumes on the year's progress in medicine and surgery, under the general editorial charge of Charles L. Mix, A. M., Chicago. The Year Book Publishers.

PEDIATRICS AND ORTHOPEDIC SURGERY, edited by Isaac A. Abt, M. D., and John Ridlon, A. M., M. D. Series of 1914, Volume V. Price, \$1.35.

GYNECOLOGY, edited by E. C. Dudley, A. M., M. D., and H. M. Stowe, M. D. Series of 1914, Volume IV. Price, \$1.35.

GENERAL MEDICINE, edited by Frank Billings, M. S., M. D., and J. H. Salisbury, A. M., M. D. Series of 1914, Volume VI. Price, \$1.50. Price of Series of ten volumes, \$10.00.

These three volumes, a part of the 1914 series, review their subjects for the past year. The volumes are especially intended for the general practitioner who has not the world's literature at hand nor the time to read it if he had. It enables the practitioner, for a small sum, to keep abreast with the latest advancements in medicine and surgery. The present volumes keep up the standard of the previous volumes.

THE CLINICS OF JOHN B. MURPHY, M. D., AT MERCY HOSPITAL, CHICAGO, AUGUST, 1914. Published bi-monthly by W. B. Saunders Company, Philadelphia and London.

Perhaps the best thing in this volume of Murphy's clinics is his clinical talks on surgical and general diagnosis of Ileus. Other subjects studied are Arthroplasty of Hip—Ascending Root Neuritis Following Amputation of the Cauda Equina Close to the Conus—Malignant Papillomatous Cyst of the Breast—Paralytic Ileus from Cryptogenic Peritonitis—Old Ununited Colles' Fracture—Left Facial Nerve Paralysis of Congenital Origin—Paralysis of the Right Facial Nerve, Result of Basal Skull Fracture—Intra Uterine Fibroid—Paget's Cancer—Carcinoma of Rectum—Sarcoma of Humerus—Cerebellar Tumor—Congenital Luxation of Patella—Recurrent Luxation of Patella—Postoperative Ventral Hernia.

The volume is gotten out in the usual style, and is full of interesting subjects discussed in Murphy's masterful way.

BOOK RECEIVED.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS, DEPARTMENT OF THE INTERIOR, BUREAU OF HEALTH. Report of the Bureau of Health for the Philippine Islands, for the Short Fiscal Year from July 1, 1913, to December 31, 1913. Victor G. Heiser, M. D., Director of Health, Surgeon, United States Public Health Service. Manila Bureau of Printing. 1914.

THE PRACTITIONER'S VISITING LIST FOR 1915. Four styles: weekly, monthly, perpetual, sixty-patient. Pocket size; substantially bound in leather with flap, pocket, etc.; \$1.25 net. Lea & Febiger, publishers, Philadelphia and New York.

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Original Articles

ALCOHOL IN MEDICAL PRACTICE.

WILLIAM C. BOUTON, A. B., M. D.
WAUKEGAN, ILL.

This article was first written with the hope that it might be published in a popular magazine, but this plan having failed, a few changes were made, suitable to its publication in this JOURNAL. The original purpose can be seen, however, in the language which was intended to be readily understood by the average layman.

No apology is needed for publishing an article on the subject of alcohol, for there is no more important question before either the medical, the legal, or the clerical profession, and every honorable citizen ought to do what he can to get rid of this greatest curse to humanity.

As my health is slowly failing, this will probably be my last medical contribution, and I hope it may be not only interesting, but also helpful to some members of my beloved profession.

I consider the medical phase of this question as of very great, if not the greatest importance, because in many cases, probably far more than is generally believed, the use of alcohol first begins with its use as a supposed medicine, which is a very popular and wide-spread fallacy, the victim first taking it for some real or imaginary ailment, either from his own belief in its virtues or its use by his relatives as a family remedy, "an ever present help in time of trouble," or in its disguised form as one of the "health and strength restoring" malt extracts, which are simply different brands of beer under fancy names, or more often as one of the many strongly alcoholic patent medicines, or, unfortunately, far too often as a prescription of the trusted and well-meaning but ignorant family physician, who may be temperate or even a total abstainer himself, but

more frequently "takes his own medicine" of this kind in sickness and in health. Many people who believe in temperance or even prohibition, are taking patent medicines, all of which are practically worthless, if not actually harmful, and many of them containing either large amounts of alcohol, morphin or other opiate and cocain, all of which are intended to develop an appetite for the drug and make the frequent user of his or her favorite "dope" an ignorant but hopeless slave to a degrading and ruinous drug habit. Many, who oppose its use as a beverage, use alcohol in some form quite freely as a medicine, and are as earnest in defense of their favorite "booze" as any old toper could be. Many use it in the form of so-called cordials, tonics, restoratives, and a host of nostrums "guaranteed" to cure all ills of the flesh.

Now, in the first place, regarding the real nature of alcohol. It is an interesting historical fact that while wines and other alcoholic liquors were used freely for thousands of years and intemperance was a ruinous vice of many nations for centuries, yet alcohol, pure or almost pure, was not known until about 1100 A. D., when an Arabian alchemist obtained it by distillation of fermented liquors. The name alcohol comes from the Arabian words *Al ghole*, meaning an evil spirit, doubtless given it because its exciting and degrading effects upon men suggested their possession by evil spirits. The name with this meaning is even more appropriate than the Indian name "fire-water," both being strongly suggestive of the infernal origin of the drink-habit and the final destiny of its hopeless victims. When alcohol was first obtained, it was supposed that a great medical discovery had been made. Physicians generally began using it in practice and were lavish in their praises of its curative powers. As its use rapidly created a craving for it, the demand for it became enormous, and its

use by the public, both as a medicine and a beverage, became general. Fortunately for humanity, there have been wise physicians all through the centuries who doubted and opposed the claims of alcohol as a medicine, and in the last half century medical science has clearly demonstrated by accurate and convincing experiments the wisdom of their doubts and courageous opposition.

While it may seem strange that not only the laity but also most physicians have been deceived for centuries regarding the true nature of alcohol, yet it is not really to be wondered at, for alcohol has been well called a "nerve fooler" because it produces sensations and apparent effects that are totally different from its real effects. This is well shown in the contradictory terms which are most often applied to it, stimulant and intoxicant. If it were truly the first, it could not also truly be the second. But contrary to the most general view, both among the laity and physicians, it is not a stimulant at all—but only seems to be such to the ignorant and superficial observer. It is really depressing to both circulation and respiration and narcotic to the brain and nervous system. Its correct position in a classification of drugs is between chloroform and ether on one hand and opium on the other. It is less depressing than chloroform and more so than ether, less anesthetic and slower in action than either one, less narcotic but more depressing than opium, which is more familiar to the public in one of its liquid or active concentrated forms as laudanum, paregoric, morphin, codeine or heroin. The other term, commonly and correctly applied to alcohol intoxicant, means something quite different from the popular idea of the word. The average laymen, if asked to give a synonym for the word intoxicated, would probably say "drunk," and if asked whether an intoxicated person should be taken to a hospital or receive medical care, would probably say "nonsense, take him home or to the police station, and let him sleep it off. He'll be all right tomorrow." Yet, intoxicated really means poisoned, having just the same derivation as toxic, poisonous and toxin-poison produced by germs. A person intoxicated with alcohol is really poisoned, for alcohol in sufficient quantities is not only a powerful, but also a rapidly fatal poison, as has been

repeatedly demonstrated by reckless drinkers taking large amounts of brandy or whiskey at one time as a result of a boast or wager and dying within a few hours. A pint of alcohol in any form, taken at once or within a short time, produces unconsciousness quickly and death almost always in from six to ten hours. Cases are occasionally reported of even hardened drinkers suddenly dropping dead after taking a few stiff drinks of brandy or whiskey close together, and deaths of children who have ignorantly taken a drink from the family flask, are comparatively frequent.

What are briefly the real effects of alcohol upon some of the vital organs? First, upon the heart as the center of life. Without giving the details, which would require far too much space, accurate experiments by many competent physicians and scientific observers have fully demonstrated that, while alcohol makes the heart beat faster, it also makes these beats steadily weaker, and instead of being a heart stimulant, it is a direct heart depressant, and, in sufficient amounts, paralyzes the heart. Its long continued use, even in comparatively small doses, as by so-called moderate drinkers, who may never become actually drunk, causes fatty degeneration of the heart-muscle and other muscular structures, including the arteries, so that sudden heart failure causes death in many such cases. Rupture of a diseased artery, producing, if in the brain, apoplexy and death occurs in many others, who may seem to their relatives and friends to be in good health. Most life insurance companies consider such moderate drinkers very poor risks, and will either not accept them at all or only for small policies, and usually at much higher premiums than the standard rate for their age.

Now, very briefly, what are its effects upon the liver, stomach and kidneys? It is commonly supposed that a little brandy or wine is a so-called stomachic and aid to digestion, and brewers, distillers and ex-preachers, employed by them during a local option campaign, are fond of quoting Paul's advice to Timothy to "drink no longer water, but take a little wine for thy stomach's sake," but Paul, while a great and wise apostle, was not a physician, and knew nothing about the real action of alcohol upon the stomach. He was simply voicing the popular but false belief about

wine. Alcohol, even when taken in small quantities, has a decidedly unfavorable influence on the course of normal digestion, and impairs the digestive fluids and their functions. Perhaps no more powerful temperance lesson could be given than to attend the autopsy of a drunkard and see the degeneration and destructive changes in all the organs, but especially in the stomach and liver, which are most fully exposed to the action of this poisonous drug. The stomach distended, its walls thickened, its inner lining grey and mottled with traces of old hemorrhages, instead of the healthy pink velvety lining, and covered with foul slimy mucus. No wonder that the chronic drinker has no appetite for food, but only an insatiable craving for the poison which soothes for a short time only to be followed every time by worse craving and torment. He has within him constantly a "little hell," a slight foretaste of his future eternal torment.

The liver is enlarged in some cases, mostly beer drinkers, and shows fatty degeneration, but in other cases, mostly whiskey drinkers, it is contracted, hardened almost like leather, and the surface is very much roughened, so-called "hob-nailed" liver. This contracted liver so compresses the large veins within it that the return circulation from the abdomen is seriously interfered with, and collection of fluid or abdominal dropsy occurs, causing the distended abdomen, so common in old toppers, brewers, distillers, saloonkeepers and bartenders.

Alcohol causes disease of the kidneys in several ways. It is not only a poison itself and a severe irritant to the kidneys, causing inflammation and fatty degeneration, but it also seriously interferes with the excretion by the kidneys of other poisonous waste matters, which are being constantly formed in the body and must be carried away or cause disease and death. The habitual drinking of alcoholics is one of the most common causes of "Bright's disease" or nephritis. Professor Christison, of Edinburgh, claims that 75 to 80 per cent of cases of this disease in Scotland are produced by alcohol. This disease is also one of the common causes of death among so-called "well off" moderate drinkers and drunkards, and the name like "apoplexy," "meningitis," "heart failure," "pneumonia," etc., looks and sounds much nicer in the death-certificate

and funeral notice than just plain "chronic alcoholism," which is, of course, all right for just a bum or a hobo dying from the same causes. It also spares the tender feelings of the relatives, prevents a coroner's inquest, incidentally helps the attending physician's bank account and, like charity, "covers a multitude of sins."

What about the effect of alcohol upon the most important and highly organized structures in the body—the brain, the spinal cord, and the rest of the wonderful nervous system? Even a layman should not need to be told that its effect upon the nerves, as well as the muscles, is depressing and weakening, when he sees the trembling tongue and hands and staggering gait of the victim of this degrading and destructive vice. In some cases a severe general inflammation of the nerves results, known as multiple neuritis, causing great suffering and weakness, if not paralysis. One of the leading medical authors says: "Alcohol never acts as a true stimulant to the brain, the spinal cord or the nerves. On the contrary, its dominant influence is depressant. The increased activity of thought and speech after its use is not due to stimulation, but to depression of the inhibitory or controlling nervous apparatus. So far as the brain is concerned, it does not increase the vigor of thought nor its depth, but, on the contrary, benumbs the activity of mental process."

Almost the first effect of alcohol, even in very small doses, is to impair judgment and reason, and it is especially in this respect, in injuring first the highest mental faculties, that alcohol proves itself to be the champion "brain-fooler," the "joker," as it were, of his infernal majesty in his endless game with these deluded mortals. In the first stage of intoxication, and sometimes after taking very small amounts, the victim has an exaggerated sense of well-being, and is very apt to boast of his strength, his skill, his knowledge, etc., and is often loudly profane, pugnacious, and generally disagreeable, or perhaps just foolish and constantly laughing at his own or others' attempted wit and senseless jests. Many accurate scientific experiments have shown absolutely that men, who had taken only very small amounts, and who believed the only effect was to make them do their work better and quicker, were actually not doing their work as well as

before, taking longer to do it, had less strength and skill, and were clearly inferior to their condition while abstaining from liquor entirely. Much more might be said along this line, but space will not permit, and I will speak briefly about the effect of acute and chronic alcoholism upon the brain.

Acute alcoholism is simply another name for delirium tremens. The symptoms are usually well known and most distressing and the mortality high, especially if occurring after injuries or in the course of pneumonia. Acute alcoholic hallucinosis is another grave form frequently ending in suicide. Chronic alcoholism produces several forms of brain disease and insanity, under the names of chronic delusional insanity; another form associated with multiple neuritis, and the final and most hopeless form of all, alcoholic dementia with extensive or complete loss of all the mental faculties and also muscular control, thus strongly resembling paresis, or general paralysis of the insane.

So much for the effect of alcohol upon different organs. Before considering its effect very briefly upon some diseases as a supposed medicine, let me speak of its imaginary value as a food, which is perhaps as widespread a fallacy as its supposed stimulant action and this notion, especially about beer and "malt extracts" under various names, is industrially circulated by brewers in their big newspaper and magazine "ads," but one claim is just as absurd and false as the other.

Professor R. D. Mussey stated in a paper read before the American Medical Association that "A poison is that substance, in whatever form it may be, which, when applied to a living surface, disconcerts and disturbs life's healthy movements. It is altogether distinct from substances which are in their nature nutritious. It is not capable of being converted into food and becoming a part of the vital organs. Such a poison is alcohol—such in all its forms, mix it with what you may."

Dr. Frederick Peterson, famous mental and nerve specialist of New York, and perhaps the highest authority regarding the effects of alcohol on the nervous system, had, and probably still has, the following printed on the backs of all his prescription blanks: "Alcohol is a poison. It

is claimed by some that alcohol is a food. If so, it is a poisoned food. The regular daily use of alcohol, even in moderation, often leads to chronic alcoholism. Alcoholism is one of the most common causes of insanity, epilepsy, paralysis, diseases of liver and stomach, dropsy and tuberculosis. A father or mother, who drinks, poisons the children born to them, so that many die in infancy, while others grow up idiots and epileptics." If all physicians who believe these facts would follow Dr. Peterson's example, they could do more perhaps to promote total abstinence and the welfare of humanity, both present and future, than in any other way.

Now, regarding the use of alcoholics as medicines in a few of the most important diseases, in which they were formerly most often employed by most physicians, and are still so used by many poorly educated and unprogressive physicians and nurses, but in which their use has been entirely abandoned by most well educated and up-to-date physicians. Diphtheria is one of the diseases in which alcohol was often freely given in the belief that it was a heart stimulant. As the heart is always weak in diphtheria and most deaths occur from heart failure, alcohol, being a heart depressant, simply made matters worse, undoubtedly causing many deaths where the patient might otherwise have recovered. Pneumonia, one of the most fatal diseases, often called the "Captain of the Men of Death," is often wrongly treated in the same way in spite of the well known fact that even moderate drinkers are especially susceptible to the disease, and that a correct diagnosis of pneumonia in a drunkard is practically equivalent to a death certificate. While pneumonia is always a serious disease, it is not often fatal in young, vigorous men or women, properly treated without alcoholics, but in the weak or in young children, old people and habitual drinkers, it is a rapidly fatal disease in most cases, and giving alcohol simply increases the mortality. Comparative death rates in pneumonia in cases treated with and without alcohol, show clearly the superiority of the non-alcoholic treatment.

What about its use in pulmonary tuberculosis or consumption? Intemperance is one of the causes frequently leading to this disease, but in

spite of this fact, alcohol was formerly often given and is still used by many ignorant physicians in its treatment. Not to waste time, I will quote simply two of the highest authorities. Dr. Knopf, of New York, honorary vice-president of the British Congress on Tuberculosis, says: "Alcohol has never cured and never will cure tuberculosis. It will either prevent or retard recovery. Avoid all alcoholic beverages." Dr. Frank Billings, of Chicago, says: "It is a recognized fact in the medical profession that the habitual use of alcoholic drinks predisposes to tubercular infection. It is also recognized, I think, by most physicians that alcohol as a medicine is harmful to the tubercular invalid." Even in minor ailments like colds, diarrhea, colic, etc., alcohol is only an injury. Certainly, after knowing its real action in health upon the vital organs, it would be contrary to both medical science and common sense to expect it to be of any possible benefit in any disease of these organs. The benefit which seems to follow its use in a few conditions, is due to the hot water or milk with which it is given, or to some real heart or nerve stimulant like ammonia, camphor, digitalis, nitroglycerine, or strychnia given at the same time, and the benefit is obtained not on account of the alcohol, but in spite of it.

Here are a few quotations from some of the most distinguished physicians in Europe and America and the experience of two hospitals that have not employed alcohol as a medicine for years. Dr. August Forel, of Switzerland, says: "All alcoholic liquors are poisons, and especially brain poisons, and their use shortens life. They should be resisted as much as opium, morphin, cocaine, hashish and the like." Sir Andrew Clark, the Queen's physician and senior physician at the London Hospital said: "As I looked at the hospital wards and saw that seven out of ten patients owed their disease to alcohol, could I say to you any words stronger than these of its terrible effects? When I think of this, I am disposed to give up my profession and go forth upon a holy crusade, preaching to all men—beware of this enemy of the race" The late Dr. N. S. Davis said that in his large clinical practice he had for over thirty years tested the medical use of alcoholics, and had found no case of

disease and no emergency arising from accident that he could not treat more successfully without any form of distilled or fermented liquors than with them. Dr. J. H. McCormick, of Kentucky, said: "It is time alcohol were banished from the medical armamentarium; whisky has killed thousands where it has cured one."

The first hospital where non-alcoholic medication was tried on a large scale was the London Temperance Hospital, which opened in 1873. At that time wine and stronger liquors were literally poured into patients with frightful results. Death rates were enormous. The success of this hospital has doubtless had much influence in modifying this abuse. Its average death rate has been only six per cent throughout the years since its beginning. This is lower than that of any other general hospital in London, and proves conclusively that non-alcoholic medication is the best. Another temperance hospital is the Red Cross Hospital of New York City. The surgeon-in-charge, Dr. Lesser, who was Surgeon-General of the American Red Cross during the Spanish-American war, said, after his return from his first visit to Cuba, that four out of six of his patients to whom he allowed liquor to be given as a concession to the popular idea that it was necessary, died; while subsequently in treating absolutely without alcohol sixty-three similar cases, only one died, and he upon the day when he entered the hospital.

As for personal experience, during the past fifteen years I have prescribed almost no alcohol, and during the last ten years none at all, except the very small amount contained in a few proprietary (not patent) medicines, and in regular medicinal spirits, tinctures, etc., and these very seldom, as I use mostly pills, powders and tablets. As to results, the only reliable test as to the efficiency of any plan of treatment is the comparative mortality test. From April, 1904, to April, 1914, I have had just twenty deaths (six in the last three years) or an average of two each year. None of these were between the ages of fifteen and sixty. Five of the twenty were over sixty years of age, nine under one year, and thirteen under five years of age. In this community having a population of about twenty-two thousand, the city clerk's record shows that from

January 1, 1904, to January 1, 1914, there were 3,110 deaths. Possibly one hundred, certainly not more, occurred in the practice of physicians outside the township, leaving at least three thousand deaths, or three hundred annually to the credit or discredit of the local doctors. There are just twenty-three of us here, so that, if the deaths were divided evenly among us, we would each have averaged thirteen annually during this period. Of course, our practices vary greatly, but with two deaths annually in my practice compared to an average of thirteen annually per physician, I doubt if any other physician has had as low a death rate as mine in proportion to the size of his practice. Some of my colleagues are very able and up-to-date men, both in medicine and surgery, others, of course, are not, but I believe the difference in mortality rates is due at least as much to non-alcoholic as compared to more or less alcoholic medication as to any other cause. So much for the facts about alcohol as a medicine.

Now, as to my opinion regarding the best way to settle the liquor problem. I believe the best plan for our country is national prohibition, *enforced by law*, of the manufacture, sale, importation, transportation and exportation of alcoholic liquors, both for beverage and medicinal purposes. It will be some time, however, probably before any political party, except the Prohibition Party, will dare to put such a plank in its platform, mean business, and hope to win the election, and the Prohibition Party, judging by its progress in the past forty years, will not win for at least a century. If, however, a prohibition amendment of the same kind can be added to the Constitution, passed by Congress, signed by the President, and then enforced by both national and state governments, it will do just as well, and earnest efforts are being made to secure such an amendment. Until we have national prohibition, the best plan, I believe, is the Anti-Saloon League local option campaign method, winning city by city, township by township, county by county, and state by state. There has been wonderful progress, both in temperance sentiment and in increase of prohibition territory, during the past decade, and the good work seems to be going on more rapidly all the time.

I believe the medical profession and the general public should be taught the truth as rapidly as possible about the danger of alcoholics, both as beverages and as medicine, and also that scientific temperance education in the public schools should be encouraged in every possible way. I believe that all proprietary medicines and all patent medicines (if the sale of harmful patent medicines is still to be permitted) containing alcohol, morphin, cocaine, or any poisonous drug, should have printed on the label not only the name and amount of the drug, but also these words in large type: "Alcohol, morphin, cocaine, etc., are powerful poisons. Follow directions very carefully."

Will all these measures bring the final solution of the liquor question? No, the final solution will come later. When we consider the host of men who are profiting financially by the infernal liquor traffic, what a contemptible, greedy, money-grabbing crowd they are. The contemptible ex-preachers, the Judases of their noble profession, betraying the Master and serving the devil and the liquor traffic in local option campaigns, the dishonorable physicians who, for the good will of their brewer and saloonkeeper friends and their patrons, prescribe alcoholics freely at every opportunity, the unworthy lawyers who try to protect the law-breaking saloonkeepers and "blind piggers" from just legal penalties, and to prevent the widows and orphans of drunkards from recovering part of the money of which they have been heartlessly robbed, the greedy property owners who knowingly rent or sell their land or buildings for the use of breweries, distilleries, saloons, wine rooms and vile hotels, clear down through the whole disreputable list to the dirty beer-peddlers and "blind piggers." They are all "tarred with the same stick," and must all carry their share of the awful load of responsibility for crime, poverty, insanity, disease, wrecked homes, and ruined souls. The final solution of the liquor question will not be reached until they all stand at last before the Great White Throne and receive from the Judge of all men and nations the sentence of eternal punishment.

The medical profession should do everything possible to free deluded and suffering humanity from the awful curse of alcoholism.

TYPHOID VACCINATION.*

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Typhoid fever is a readily preventable disease compared with many of the other infectious and contagious diseases and it behooves us as physicians in the state hospital service to acquaint ourselves with the methods now almost universally employed in the prevention of this disease. Hygienic and sanitary measures have done much toward eliminating typhoid, yet a more rigid application of these measures is necessary if we shall hope to curb the occurrence of epidemics.

Typhoid fever is a filth-borne disease. It is caused by germs which are parasites and which depend for their perpetuation upon multiplication in the bodies of human beings. The germs are discharged from the bodies of persons in the stools and urine. Every person who has typhoid has swallowed typhoid bacilli, which have come in some way through the excreta of some infected person. Unless we put into our mouths and swallow something which has been soiled or contaminated with human filth we will not have typhoid fever.

In the state hospitals we have much with which to contend. We receive patients from all walks of life, from the best of homes to the slums, where conditions are most unhygienic and unsanitary—where diseases of every kind thrive, but to which little or no attention is paid. Many of the patients that we receive are more or less demented, careless about their appearance and untidy. Considering these facts coupled with the possibility of a carrier among them one can readily see how easily typhoid fever may be introduced into a hospital for the insane. Relatives and friends from all parts of the State and from all walks in life visit patients, and invariably bring with them food stuffs such as cakes, fruit, cold meats and bread. Such food may be contaminated with typhoid bacilli. Such foods are frequently distributed by the patient to his fellows in the ward. This should be considered as a channel through which typhoid may enter an institution.

Here let me emphasize that in obtaining an-

amnoses close inquiry should be made as to typhoid in the case of the patient, and such should be recorded in his history and on ward card, and such patient as gives a positive history of typhoid should not be given employment in our culinary department.

The nursing force should not escape consideration, for frequently attendants entering the service give a history of having had typhoid fever from a few months to one or more years before. Among them may be found a carrier. I believe the best way of disposing of such cases at present is to relieve them of service in our kitchens and dining-rooms, or wherever it is necessary that food be handled.

We are fully aware that all who have typhoid are capable of infecting others. Further that those who are convalescing, and those who are considered recovered also act as distributors over a varying period. We have learned that in these people the gall-bladder is the store house for typhoid bacilli, and that the bacilli suspended in the bile are spurted into the duodenum and thence to the exterior with the feces. They are also excreted in the urine. Knowing these things we can readily appreciate the ease with which one's fingers may become contaminated and the bacilli carried to the food stuffs by those employed in the kitchens or dining-rooms. Especially is this true of those who cut and handle the bread. To cite an instance: About two years ago an epidemic of typhoid occurred at one of our State hospitals and on close investigation, the source of the infection was sifted down to two attendants employed in the dining-room in the cottage in which the cases developed. On being questioned it was learned that they had had typhoid fever from one to two years before. Analysis of urine and feces of both proved conclusively that they were the source of infection. They handled the bread and without doubt this article supplied the medium of exchange.

During the first part of September, 1913, in cottage 10, north of the Kankakee State Hospital, there developed several cases of diarrhea. As is our rule these cases were referred immediately to our hospital ward where they were given free catharsis followed by an astringent.

Case 1. The first case was that of Mrs. A. W., received at the hospital at 6:50 p. m., September 1, 1913; temperature, 105.2; pulse, 108; respiration, 22.

*Read before the Illinois State Hospital Society, Chicago, Ill., January 29, 1914.

Physical examination: abdomen distended, pain on pressure, gurgling sounds elicited, headache severe, tongue very red about border, lips dry and marked diarrhea. On September 3 faint rose spots were detected. This case presented symptoms quite diagnostic of typhoid fever, but in order to substantiate the clinical diagnosis a Widal was made September 7, and was found positive. The patient then was placed in isolation; symptoms heretofore stated remaining about the same throughout the course. The temperature was not of the hectic type. It remained at from 104 to 105 degrees continuously. On September 26, 8 minims of typhoid vaccine was administered.

Case 2. On September 1, 1913, from the same cottage, Mrs. L., was referred to the hospital ward, temperature, 105. Weakened physically, pea-soup stools, rose spots and profuse menstruation. This patient's temperature remained elevated throughout the course of the two weeks and she died on September 15, 1913, of intestinal hemorrhage. No post-mortem.

Case 3. Miss A. C., also of this cottage was referred to the hospital ward on September 8, 1913, at 7 p. m.; temperature, 101; pulse, 84; respiration, 24. Physical signs: cheeks flushed, lips dry, tongue slightly coated, bowels loose. Complained of no pain on abdominal palpation. Widal on September 9 positive. From September 11 this patient's temperature ranged from 98.6 to 96.8. She was in weakened physical condition. While in the hospital ward she was more or less constipated, cathartics being necessary to bring about bowel movements. Eight minims typhoid vaccine were administered September 26. This case was of the ambulatory type and had about run its course when she reached the hospital.

Case 4. Miss L. B., of cottage 10 north, gave a positive Widal and on September 13 at 11 a. m., was referred to the hospital ward; temperature, 101.8; pulse, 106; respiration, 25. In the hospital ward at 6 p. m. the temperature raised to 103 and to 104 at 8 p. m.; pulse, 128; respiration, 28. The next morning temperature, 101.2; pulse, 110; respiration, 20. The temperature remained about the same throughout the course. Eight minims of typhoid vaccine administered September 26.

Mary T., 10 north, was referred to the hospital ward September 18, 1913, at 5:10 p. m.; temperature, 102.2; pulse, 90; respiration, 28. There were no other symptoms noted. A positive Widal was obtained several days previous. Considering the rise of temperature, the pulse and positive Widal she was referred to the hospital as a suspect. In the hospital ward her temperature ranged from 98 in the morning to 101 in the afternoon. The course of this disease was not a severe one. On September 26 she received 8 minims of vaccine.

Blood was obtained from all of the patients in cottage 10 north, numbering 106 and of that 15 gave positive reactions but none other than those referred to the hospital ward manifested any clinical symptoms.

On October 11, 1913, a patient by the name of Fred F., of cottage 8 south, was referred to our hospital

ward in a rather weakened physical condition; temperature, 102.2; pulse, 100. In the hospital ward at 3:30 that day his temperature was 103.2; pulse, 72; respiration, 22. Leukocyte count made on that date numbered 9,640 per c.cm. Temperature taken per rectum ranged from 102 a. m. to 104 p. m. From October 13 to 18 temperature was normal or sub-normal. Bowel movements were not frequent at any time. The patient gave a positive Widal on two different occasions, then a negative, then a doubtfully positive. He died in status epilepticus. On post-mortem examination there was no evidence of recent or remote ulceration of Peyer's patches. The point of interest in his case is the positive Widal obtained in the absence of typhoid.

On October 8, 1913, Mr. V. W., of cottage 8 south, was referred to the hospital ward in status epilepticus. He was somewhat weakened physically. Temperature at time of admission to hospital, 102.2. The next morning, 99.4. In the evening from 101.6 at 6 o'clock to 103 at 8 o'clock. His temperature continued to rise gradually to 105 degrees, respirations increased to 38 and 40. Blood for Widal was obtained and gave positive reaction. Intestinal hemorrhages were noted on the third day in hospital ward. His abdomen was distended, considerable pain on pressure. Patient died.

On October 12, 1913, Mr. A. B., of cottage 3 south, was seen to be failing physically and was transferred to the hospital ward for examination and observation. At time of admission to hospital ward this patient had a temperature of 103. He complained of considerable abdominal pain and there was some distention of abdomen. No diagnosis made in this case. It is stated that he died of exhaustion. However, post-mortem revealed peritonitis, perforation of ileum, typhoid ulceration, considerable atheroma of blood vessels with ulceration of aorta. Cloudy swelling of organs.

In view of the occurrence of typhoid in 3 south it was deemed advisable that blood be obtained from the patients in that cottage. Of the entire number, 118, five showed positive Widal. These five cases were referred to the hospital ward, where they were placed in isolation for 14 days, during which time they were examined frequently. They manifested no clinical symptoms of typhoid yet their blood showed a positive Widal on two subsequent occasions.

As a physician makes daily visits to the wards his attention is occasionally called to some patient who has a diarrhea. The patient is interviewed, a hospital slip made out and the patient placed in care of the hospital physician. He makes an examination, prescribes catharsis to be followed by an astringent. I would suggest here that a Widal be made in all cases of diarrhea in

cine gave a much greater degree of protection than any other. It consisted of a salt solution, suspension of fresh agar cultures of typhoid of such strength that one cc. contained two normal loopfuls, 4 mg. of fresh bacterial substance. The bacteria were killed by heating the flasks from 1½ to 2 hours in an incubator regulated at 60 degrees C. After tests of sterility ten per cent of a 1/20 solution of phenol was added. At first the dose was 1, 2 and 3 loopfuls of killed culture contained in 0.5, 1.0 and 1.5 cc. of vaccine. This dose produced severe general and local reactions and it was therefore reduced to 0.4, 0.8 and 1.0 cc. The interval between doses was ten days and the injections were made in the breast at the level of the 7th rib.

The Germans' experience may be briefly summarized as follows: There was a reduction among all vaccinated of one half in the number of cases, a much higher per cent of light attacks and a much lower per cent of fatal cases. They proved also that little was to be expected from one dose. Of those receiving 1, 2 and 3 doses the mortality per cent was 60, 33 and 8 respectively.

Leishman in England claimed that the cause of the relative failure of the vaccine in South Africa was due not to any faults or dangerous elements in the properties of prophylactic vaccination but to the use of improper dosage of an over-heated and comparatively inert vaccine which simply failed to give desired protection. Leishman reduced the amount of heat used in killing the cultures and also diminished the doses. The dose adopted and now used in practically all countries is between 500 million and one billion bacilli, as this quantity was sufficient to produce an abundance of immune bodies and rarely caused severe reactions.

In 1909 anti-typhoid vaccination was taken up in this country with a firm conviction as to its value. Its administration was at first limited to the laboratory forces at the army medical school. They then called for volunteers among the medical officers. By the end of 1900, 1,187 had received the prophylactic treatment. During 1910, 16,073 additional volunteered. On the occasion of the mobilization of the maneuver division in Texas in March, 1911, typhoid vaccination was made compulsory. The United States army experience up to that time showed that it

caused few severe reactions in healthy persons, and that no vaccination, however severe the immediate reaction may have been, had been followed by permanent injury to the individuals, and further that by all possible laboratory tests the immunity conferred was identical with and equal to that remaining after typhoid fever.

In March, 1911, the largest body of troops since the Spanish-American War was gathered along the Mexican frontier. Typhoid prophylaxis ceased to be academic and became a practical question insistent on solution. Incinerators for the destruction of excreta by fire were forbidden. It was thought that in eight weeks, through the agency of flies, crowded camps and more crowded tents, there would be some cases of typhoid. Vaccine was administered to the entire number, namely 20,000, as rapidly as they arrived at camp. In San Diego, where 3,000 troops were encamped, there were no cases of typhoid, yet in the city near by there were several. For a period of four months 13,000 troops were located at San Antonio and it is stated that all of the elements which tend to affect the health of men under canvas prevailed there. However, but two cases of typhoid developed as compared with 1,729 positive and 2,693 probable cases of typhoid that occurred at Jacksonville in 1898. This provides a striking illustration of the efficiency of vaccine.

It is stated by Dr. F. F. Russel of the United States Army, that of 700 men who had received vaccine and who made a practice march of 600 miles through a part of Tennessee where typhoid fever is endemic throughout the year, no typhoid developed. In the previous practice in the same territory ten cases developed, but wholesale vaccination practically stopped the spread. In the army typhoid vaccine is administered at the beginning of each four-year period of enlistment. Not because the immunity has disappeared by that time, for its duration is not yet known.

According to government reports of 88,000 plus enlisted men in the United States Army during the year 1913, there were but 12 cases of typhoid.

According to Dr. Russel's experience the most marked reactions occur following the administration of the first dose of vaccine, but the per cent

order that we may intelligently rule out typhoid or in case that it is typhoid that we may take steps toward curbing an epidemic.

Taking a broad view of the situation, the fact that the cases developed in various wards of this institution on both south and north sides, and further, that these wards were supplied by separate kitchens, and in view of the fact that we were unable to hold any particular individual employed in these kitchens responsible for the contagion, inasmuch as we had not identified a carrier, we concluded that there must be some common source of supply.

Our efforts were first turned to the water. We have had two sources of water, namely, the artesian, which has provided us with the drinking water, and the river, which has supplied the irrigation system and lavatories. On examination the artesian water proved negative. The water forced through boilers and thence throughout the hot water system came directly from the river. On bath days when a considerable amount of water was needed much of it was forced through boilers without being sterilized. It is possible that in this way the infection reached our patients, who, I may add, have been seen to drink of this water. Again, patients have been seen to drink the river water used for irrigating purposes. However, our cases of typhoid developed too late in the season for us to consider the water used for irrigating.

The dairy was next visited and Widal's made on all employed therein, numbering four. One gave a doubtfully positive plus a history of typhoid two years before. This patient had up to this time taken an active part in the handling of the milk.

Widal's were made on all employes in the culinary department. In the west kitchen one showed a marked clumping, no history of typhoid; in service since September 1, 1913. In the general dining room one showed positive Widal. No history of typhoid except in family four years ago. In service at this hospital since June 5, 1913. In rear kitchen Mr. B., positive Widal, history of typhoid; employed in kitchen since beginning service one year ago. North kitchen, Mr. W. L., positive Widal; typhoid ten years ago, in service 18 years.

The fact that positive Widal's were obtained in those employes whose business it is to handle

much in the way of uncooked food, makes it reasonable to believe that among such might be found a carrier. Efforts were at that time made to have the feces and urine of those showing positive Widal's examined with the view of bringing to light a carrier. However, owing to the lack of facilities in our laboratory, such examinations could not be made. We, therefore, were unable to state specifically the source of the infection and hence resort was made to the administration of the anti-typhoid vaccine with a view of curbing the further spread of the disease.

The basis upon which the practice of anti-typhoid vaccination has been built is, of course, the observation that one attack of typhoid almost invariably gives permanent immunity against subsequent attacks. In 1896 Sir A. E. Wright in England and Pfeiffer and Kolle in Germany, demonstrated the harmlessness of inoculating killed typhoid bacilli into human beings. Pfeiffer and Kolle placed the procedure on a solid scientific basis. Wright was the first to suggest its use in the armies and in the personnel of hospitals. In 1897 there occurred an epidemic of typhoid fever at the Barming Asylum, Maidstone. The vaccine was administered to 100 attendants with gratifying results. In 1900 the British War Office authorized the use of the vaccine but vaccination was voluntary. The results were not satisfactory. In fact, during the Boer war little or no record was kept and therefore their experience in a measure is of no statistical value. About this time many unfavorable reports were received at the British War Offices, asserting that the vaccine did no good, many maintaining that it actually increased the number of cases and deaths. The British Government thereupon decided to investigate the matter, and appointed Dr. C. J. Martin of the Lister Institute, and Sir William Leishman as members of the commission. Especial attention was given to its manufacture and dosage. As a result several important changes were made in Wright's vaccine.

Shortly after this in Germany, a commission consisting of members of the staff of the Institute for Infectious Diseases was appointed for the purpose of investigating the various vaccines at that time prepared by Pfeiffer and Kolle, Wright, Neisser-Shiga, Wassermann and Bassenge-Rimpau. They found that the Pfeiffer-Kolle vac-

of severe reactions was small, namely 0.3 per cent of the number receiving vaccine.

In view of the success met with in establishing immunity, we decided to vaccinate all patients and such employes as would submit to it. On September 13, 1913, work was begun in cottage No. 10 north, where the first cases of typhoid fever appeared.

The vaccine was prepared in our laboratory. Each c.c. of the vaccine represented one billion of killed bacilli.

The site selected for injection was the external surface of the arm about four inches above the elbow. The field was prepared by first washing with tincture of green soap and water, followed with alcohol. The vaccine was injected well under the skin and the field again washed with alcohol. In no case was there any infection resulting from the puncture. The same needle was used on all patients of a ward but between patients the needle was immersed in 95 per cent alcohol and wiped with sterilized gauze.

Three doses of vaccine were administered ten days apart. The first dose was 0.5 c.c.; the second and third doses 1.0 c.c. each. This represented the introduction of 500 millions and one billion of immune bodies respectively. The patients, both male and female, were given the vaccine as rapidly as it could be manufactured.

The most severe constitutional reactions followed the first injection.

On the male side of 1,595 receiving the vaccine but four manifested any marked constitutional reaction. In four instances the temperature rose to 102 and 104 with headaches, chills and nausea. In one of these cases there was also a marked reaction following the second injection. In one case an urticaria appeared a few hours after the first injection:

Received Vaccine—	Reacted.	Per Cent.
1,595 Male.....	4	0.25
1,455 Female.....	15	1
100 Employes.....	20	20

There was a larger number of females who reacted and especially was this so in cottage No. 5 north, where some of our best patients reside. We cannot draw any definite conclusion from this except that the most demented probably did not complain. Of the 20 employes who manifested constitutional reactions 15 were somewhat severe. The most severe reactions, however, occurred in those who had had typhoid. They

suffered severe headaches, nausea, rise in temperature as high as 103 plus chills. In all cases there was some local reaction in the way of redness and swelling, but none required dressings.

The administration of the anti-typhoid vaccine stopped the further spread of typhoid fever in this institution. The prophylactic has met with marked success in the army and there is no reason why it should not be used in institutional and civil life; especially in institutions, where typhoid so frequently appears, its use cannot be too strongly recommended.

The Kankakee State Hospital is the first institution to use the anti-typhoid vaccination on so large a scale and we feel that its efficacy is undoubted. The extended use of this vaccine will hasten the time when typhoid will become a negligible factor in our public health problems.

POSSIBLE FUNCTIONS OF MUNICIPAL LABORATORIES.

PROF. EDWARD BARTOW, PH. D.

Director State Water Survey.

URBANA, ILL.

During the past five or six years the State Water Survey has advocated the establishment of control laboratories for water supplies, especially where surface waters are used. The success of the laboratories already established proves their desirability. Their success also indicates that it would be practical to extend the work to cover all analyses that may be useful to a municipality.

A brief review of the water control laboratories will tend to show the means by which the more general municipal laboratories may be established. It is not a difficult matter to persuade the authorities of large cities having large water works plants to install laboratories. Chicago has had a laboratory for years. It is a more difficult proposition to persuade cities of moderate size and small cities that they can afford what seems to them to be luxuries. In reality water control laboratories are necessities and the day is not far distant when they will be so considered.

The large city installs a laboratory for water control with a special room for the bacteriological examination, another room for the chemical examination, and possibly a third for the examination of the mineral content when such analyses can be shown to be advantageous. Each of these

rooms may have the special chemist or bacteriologist in charge. The smaller city hesitates to install a laboratory because of the large expense to which the large city has gone. For the small city such an elaborate equipment is unnecessary, and it has been the policy of the State Water Survey to advocate an installation to fit the needs of each plant. An illustration of this is a little laboratory established at the pumping station of the Champaign & Urbana Water Company. The water is taken from wells 160 feet deep and is of excellent quality from a sanitary standpoint, so that frequent bacteriological tests are unnecessary. The water, however, contains iron and an iron removal plant has been constructed. It is necessary to exercise continuous control of the iron removal plant. The laboratory established contains a few collecting bottles, four or five bottles of reagents, a burette, pipettes, and a few flasks. The whole outfit probably did not cost more than \$20 and the tests are made by the engineer in charge of the filter plant.

More tests are, however, necessary at filter plants where the raw water is not hygienically pure. In such cases the Survey ordinarily advocates tests for turbidity, color, odor, alkalinity, number of bacteria and for gas forming bacteria.

A list of apparatus needed for such a laboratory has been published in one of the bulletins (No. 8), and a drawing showing an arrangement of the equipment necessary for such a laboratory, and detailed drawings showing the arrangement of a simple laboratory table have been prepared. This outfit modified to suit the conditions has been adopted by several water works. One of the more recent installations is at Cairo, where regular tests are made.

The laboratory is not all that is necessary. There must be a man to make the tests. At some plants a trained man has been engaged who can devote his whole time to the care of the filters and the analytical work. This oftentimes is considered too great an expense, and in some cases the superintendent or engineer of the plant makes the necessary tests. For a small plant an hour a day will be all the time needed. In other places arrangements have been made with professors in educational institutions who, for a moderate compensation, have been willing to make the necessary daily control tests.

The success of the water control laboratory indicates that chemical control can be extended to other municipal departments. Where all the time of one man is not taken entirely by water analyses he can profitably make analyses for other departments, the health department, the department of streets, police department, etc. At Moline, for example, the city chemist is making analyses of the water before and after filtration, making tests for diphtheria, typhoid, etc., for the health department, testing samples of milk, testing limestone, cement and asphalt used on the streets, making analyses of alcoholic liquors for the police department, testing coal for the power plant and is ready to make himself generally useful as the occasion arises.

All cities in the state of approximately the size of Moline can have such a laboratory with a competent man in charge. We are informed that Aurora has already made provision for a laboratory. The argument might be advanced that the smaller towns could not afford to employ a chemist. It is our opinion that they can not afford not to employ one. Sometimes several towns located near each other might unite and support a laboratory; it might possibly be called a county laboratory and be supported by all the cities and villages in the county. Arrangements have already been made to have the cities of La Salle, Peru and Oglesby under the control of a competent man. Dr. G. F. Ruediger, formerly of the State Board of Health of North Dakota, has been engaged as sanitary expert.

From the health department standpoint all the minor laboratories in the state might be under general advisory control of a central laboratory. Check analyses can be made and a general supervisory control exercised. The State Water Survey already exercises a supervisory control over the various waterworks laboratories.

The laboratory of Applied Chemistry at the University of Illinois is exercising control over the coal supplied to the state institutions under the State Board of Administration. A central authority might also be established for the control of milk analyses, food analyses, etc. It is certain that an arrangement of this kind will surely improve conditions and promote economy, efficiency and health.

CERTIFIED MILK.*

R. R. FERGUSON, M. D.,
CHICAGO, ILL.

The necessity for a clean, raw, fresh milk is by no means a modern idea, and while all due credit should be given Henry L. Coit, who in 1893 conceived the idea of certified milk and coined the word, "Certified Milk," let us not forget that the real necessity for cleanliness in the dairy business was recognized as long ago as the days of Shakespeare:

"She can milk, look you, a sweet virtue
In a maid with clean hands."

and so I take it that cleanliness in the dairy business was considered a virtue in Shakespeare's time. But today, cleanliness in the dairy business is an absolute necessity, at least in so far as it contributes to the preservation of infant life, and without which certified milk could not be produced.

However, it remained only a need in the minds of most people, or at least only a half hearted necessity, until Henry L. Coit of Newark, N. J., after years of ineffectual effort to improve the milk supply of his community through legislation and other ordinary means, founded the first milk commission and thereby started a crusade for clean milk, which has swept over the entire country and has done more toward raising the standards of purity in the dairy business than any other one agency. And from the beginning of one milk commission certifying to the product of a single farm, a rapid and continuous growth has taken place during the past twenty years, until now there are some sixty or more milk commissions and most of them medical milk commissions, certifying to the product of several hundred farms, while each farm is a shining example of that sweet virtue Shakespeare has seen fit to call cleanliness.

All that is said in this short paper refers to certified milk in general, but since I am in close touch with one of the largest commissions in the American Association, it refers particularly to the work of the Cook County Medical Society Milk Commission, better known as the Chicago Medical Society Milk Commission. The Chicago Medical Society Milk Commission dates back less

than six years, January 13, 1909, and included in its certification but one farm shipping into Chicago only a few quarts of milk daily. Our growth has been gradual until today we are certifying to the product of thirteen farms, about 10,000 quarts of milk per day, and our product is second to none.

It is entirely unnecessary for me to enumerate the eighty-one rigid rules which the commission has laid down for the guidance of the producer. Suffice it to say that our contract goes into the minutest detail in regard to buildings and grounds, equipment, sanitary and veterinary inspection, tuberculin testing of herds, foodstuffs and water supply, housing and care of the herds, medical inspection of employees, handling of the product from the time it enters the cow until it is placed on the doorstep of the consumer, including icing and transportation, bacterial counts weekly or daily as necessary, fat percentage and total solids.

Before going into detail regarding the product of this constant watchfulness and care, permit me to say a few words pertaining to the tuberculin test as applied in our state and the medical inspection of employees, as applied to our farms.

During the two years prior to the latter part of 1913, or, to be more exact, since the repeal of the tuberculin test law by the Illinois legislature, our state has been the dumping ground for several neighboring states for many of their tubercular cows, and while the Chicago Medical Society Milk Commission does not allow a single cow to be put into our herds without first being subjected to the tuberculin test, nevertheless it has been necessary for us to exact constant vigilance, in order that our herds might be kept free from tuberculosis. In order to accomplish this every herd must be tested at least once a year, but more often once in six months, and if any considerable number of cows show the slightest reaction, a retest is ordered in from sixty to ninety days, according to the opinion of the veterinarian and the judgment of the commission. No reactor is ever allowed to be returned to the herd and must be kept isolated or slaughtered as occasion demands.

Fortunately, we have entered into and are looking forward to a brighter and better future,

*Read at the sixty-fourth annual meeting of the Illinois State Medical Society at Decatur, May 21, 1914.

not only as pertains to our own certified herds, but to the whole state of Illinois, for our new state veterinarian, Dr. O. E. Dyson, lately appointed by Governor Dunne, will surely clean up our state of bovine tuberculosis and remove the disgrace to our commonwealth which was enacted at the time of the repeal of the tuberculin test law.

Medical Inspection of Employees.—Dr. Julia D. Merrill of the Chicago Medical Society Milk Commission was to have read a paper before this section on the "Medical Inspection of Employees," but the fates had decreed otherwise and today, not only the Chicago Medical Society, but the Illinois State Medical Society, is mourning her loss.

To Dr. Merrill belongs the credit of having enforced medical inspection of employes upon all our farms. And in looking over her reports to the milk commission I find some very interesting facts worth noting. Strict medical inspection of employes was put into force in November, 1912, and since that time every farm, and that means every employe on every farm who comes in contact with cow, or milk, or utensils, has been examined medically, at least once a month. To quote Dr. Merrill, "This examination included taking of temperature and pulse, a close inspection of the skin of the hands, arms, neck, face and eyes, but especially throats. Excepting tobacco throats, cultures were taken from every throat that showed any degree of hyperemia. This rule was strictly adhered to, realizing the probability of accusation that certified milk might become the source of septic sore throat; cultures were incubated and reported on in every case. A card index of each employe on every farm is kept, the points recorded being name, age, nationality, previous occupation, length of employment in the dairy business, and history as to the occurrence of any previous disease—typhoid, tonsillitis, diphtheria, any skin disease, whether vaccinated, and a mental note of any evidence of syphilis or tuberculosis." Continuing, Dr. Merrill states, "Considering this was a new work, there was surprisingly little friction. Those concerned in the production of certified milk were given to understand that the work was taken seriously by the commission, and after the first rounds the men responded as well as could be desired."

To bring out more forcibly the fact that the producers of certified milk are doing everything in their power to give us a milk beyond reproach, Dr. Merrill further states: "Two instances deserve special mention. When smallpox appeared in the vicinities of Waukesha and Barrington, where we have certified farms, the demand for vaccination was met by all the producers with hearty approval, although this meant the laying off of several men for a number of days. At Edgewood farm, near Pewaukee, Wisconsin, half the force refused to submit to vaccination and were promptly discharged. At Arcady farm, near Lake Forest, the cultures from the throat of a valued workman were pronounced suspicious a second and third time. We requested that he be removed from dairy work and sent to a local physician for treatment. This Mr. Meeker promptly agreed to, but the man refused other work on the farm and free treatment, saying all this was unnecessary. He was a Welshman, and when he left five of his countrymen went with him. It was unavoidable that great inconvenience to the management was caused by this inspection, but it is a proof of the broadness of our producers that they acknowledged the wisdom of the requirements and cheerfully complied with the same." Dr. Merrill was an incessant worker, and did much to place our commission on the high plane which it occupies today. Her valued services were recognized by all our producers, and her recommendations will be of value for many years to come. Dr. Merrill's recommendations to the commission are as follows:

1. That medical inspection of employes be continued.
2. That they be extended to include complete physical examination three or four times each year.

No case of contagious disease or septic sore throat has ever come to the attention of the commission through the use of certified milk in the almost six years of our existence.

Bacteriology and Chemistry.—No part of the work of certification is so interesting nor yet so invaluable in estimating the purity of the product as the approximate bacterial content of the milk sold under the supervision of the commission. Under the able guidance of Prof. Walter S. Haines, who is chairman of the committee

on bacteriology and chemistry, the whole procedure of the examination has been standardized.

The collection of samples, the temperature of plating, the hours of incubation, the methods employed in taking specific gravity and total solids, of fat percentage and bacterial counts, are so uniform that mistakes are reduced to a minimum. The examination of a sample by an individual, a hospital or a laboratory is of so little value when compared with the work of our bacteriologists that the commission does not place any reliability on the results of such examinations.

The commission has therefore thrown every possible safeguard around these examinations in order that the consumer may be protected in every possible way. We employ four trained bacteriologists, all well-known in their profession and to the medical fraternity, to do our work, and their results are so uniform and satisfactory that it is hardly possible to improve on the same.

Our results and our product are always open for inspection to the medical profession and the health department, while we often publish these results in our *Bulletin*.

We have no special difficulty in keeping our bacterial counts below 10,000 per C. C., although an occasional jump takes place in some of our milk for one reason or another. But every high count costs the producer from five to fifteen dollars, besides the bad record it gives his milk. The producer, therefore, must work in harmony with the commission not only for a monetary reason, but also for the fact that he is anxious to produce a clean, raw, fresh milk.

The charts I am about to show you, although from but one farm, are unusually interesting in showing at a glance the exact bacterial count and the fat percentage of the milk from this particular farm. These charts were made by the producer, but the counts, etc., were taken from the examinations made by our bacteriologists. One chart is for 1911, one for 1912, one for 1913. Please note that the counts on this particular farm for 1913 never went above 7,500 per C. C., while the great majority were below 2,500, many being as low as three, four or five hundred per C. C.

Another one of our farms shows every count since January 1, 1914, below 5,000, while several others have not gone above 10,000. *The Chicago Medical Society Milk Commission nor any other commission in the American Association do not guarantee a maximum of 10,000 per C. C., but we try, through every means possible, to produce a clean, raw, fresh milk with a maximum count of 10,000 per C. C. and absolutely free from pathogenic bacteria. But this does not mean that we never have a count over 10,000; but it does mean that we have never allowed a farm to continue certification whose count did not come below 10,000 in the allotted time of ten days. Our object is to encourage (not to discourage) the production of certified milk, and were we, or any other commission, to stop certification merely because a count of fifty or even a hundred thousand per C. C. were recorded in our weekly examinations, there would probably be no certified milk produced in the United States.*

Fat Percentage.—Our fat percentage is not uniform for all our farms, but varies from 3.5 per cent. in a Holstein milk to 5.5 per cent. in a Guernsey. However, and this is the important fact as pertains to fat percentage, the fat percentage for any particular farm must be standard for that farm from day to day, and must not vary more than 0.25 per cent. either way. In other words, a Holstein herd may be standardized at 3.75, but an allowance is made from 3.50 to 4. A Brown Swiss may vary from 3.75 to 4.25, the standard being 4, while a Guernsey or Jersey may be standard at 4.75 and an allowance be made from 4.50 to 5. In this way and no other may a physician choose his fat percentage for the particular purpose that is required.

As a further example of the work we are doing for the improvement of the dairy industry, I have seen fit to have placed before you the product itself. Does not such a package, with its double seal and its unbroken cream line, speak for itself, and how can it do otherwise than awaken enmity in the minds of those producing milk but unable to produce a milk to attain to our high standard? This product represents the highest standard yet attained in the dairy industry, and is the result of constant watchfulness and care, not only of the commission but of the producer and all those who in

any way are working with the commission for a better, cleaner milk. We are constantly receiving inquiries regarding certification; not only from other farms, but from other cities and from individuals who are taking up the propaganda for clean milk. An occasional farm is refused certification because the preliminary sanitary inspection is so far below our standards.

As the market milk is constantly improving, through the vigilance of city health boards and state health boards and their co-operation with the producers, it behooves all milk commissions, whether medical or otherwise, to look to their laurels. The work of North of New York State teaches us that almost any intelligent dairyman can produce milk of a bacterial count of 10,000. When market milk begins crowding certified milk very closely in the matter of bacterial counts, our commissions must be in a position to at once lower our maximum requirements to 5,000 per C. C. and thereby raise our standards without any hardship being placed upon the producer. Since about 75 per cent of all our counts are now below 7,500 per C. C., just a little more care and watchfulness with a little personality thrown into the work and our maximum could be reduced to 7,500 per C. C.

In closing I desire to leave with you the following important facts:

1. That certified milk has done much to raise the standards of cleanliness in the entire dairy business and therefore justifies its existence.

2. That medical inspection of employees is an absolute necessity on all certified farms.

3. That market milk can never hope to attain the high standard of certified milk in any other manner than by its certification.

4. That in the near future our standard must be raised and our maximum bacterial count be lowered to 7,500 per C. C.

DISCUSSION.

Dr. M. W. Snell, Litchfield, Ill.: In this milk problem it is necessary, before we can reach the ultimate good to be accomplished, to create the element of human interest.

Rosenau gives a very pertinent illustration of this when he says that a dozen babies in one block may become sick and all die, purely with milk as the basic element of their death. But let one baby in the next block be killed in scalding milk, and it creates the element of human interest in the newspaper reporter and through him to the public at large much more

quickly and more forcibly than the death of the former dozen babies, although the medium of their death was exactly the same—in one case impure milk and in the other scalding milk.

THE MILK PROBLEM.*

M. W. SNELL, M. D.,

LITCHFIELD, ILL.

There is a great subject addressing itself to the dominant forces in American life just at the present, viz., that of hygiene and sanitation. One department of that subject which has received considerable attention from varied sources is the pure food problem, and the milk question is only a small part of that problem. Now, considered in this subdivision, the milk problem seems narrow and contracted, but practically it is big in all directions. In our immediate communities, yours and mine, it doesn't seem so important, but to the slum baby, supplied with milk through a tube many miles long, the subject is foreboding. The milk question is one of the living topics; it enters into the domain of preventive medicine and touches most social and economic forces.

According to the Bureau of Animal Industry, there were in 1910 22,774,033 milch cows in the United States with an average value of \$40.50 each. The average annual production per cow was 3,670 pounds of milk;—enough if placed in one lake to float the navies of this so-called civilized world. At 10 cents per quart it would annually pay the interest on the public debt and reduce the principal more than 500 million dollars.

The question has invaded politics, which is a hopeful sign of the times. Instead of devising bigger and bigger guns to kill, the forces of society are compelling our law-makers to turn to the more ennobling uses of peace and the conservation of the greatest asset of the nation—health. We should welcome the political advent of the food problem, as the health boards have too long been the foot-ball of politics, but we must insist that the administration of the laws be strictly non-partisan.

Now, why have we a milk question? Except superficially, we do not have a bread question, a fruit question or a grain question, although all are standard articles of diet. We have a milk question because milk is likely to be dangerous

*Read before the Christian County Medical Society at its semi-annual meeting, Taylorville, July 17, 1913.

to health; because it is the most difficult of all standard articles of diet to obtain and to handle in a safe manner; and because it is for the most part consumed raw. Probably 90 per cent of all other food is first cooked, and cooking destroys germ life. It is a food question that begins with the cradle and ends with the grave, sometimes a premature grave. One interested in the advancement of sanitation often hears the remark: "Look at me, hale and hearty, 70 years old, always ate and drank anything I wanted—dirt, bacteria and all." Now that person forgets that you can not judge the fruits of victory alone by the number of the survivors: We must have a roll call of the dead and wounded.

In the old days many a milk-borne outbreak occurred, and many an infant met an untimely death through impure milk, but the dangers were unknown and unrealized. The affliction was attributed to some other food, sewer gas, miasms from the soil, or some other mysterious agency, not excepting the will of Divine Providence. The milk has not changed so much since these good old days, but knowledge has.

Now, the milk question, like most other problems in preventive medicine, lacks the dramatic interest. You know better than anybody that the tragedies we read of in the newspapers today and promptly forget are not life's real tragedies. You are aware that more people in the United States died of tuberculosis last year than were killed in the entire four years of the civil war. You know that more people died of typhoid fever in this congressional district last year than were killed by bullets in the American army during the Cuban campaign. These two diseases are mentioned because they are often spread by infected milk. It is much more theatrical to cure a disease than it is to prevent its occurrence. To stamp out an epidemic is a more thrilling and dramatic achievement than to prevent its occurrence. When disease is prevented nothing happens; there is lack of action, but to us the good old ounce of prevention is worth more than the pound of cure. Babies are killed by milk in an insidious manner. If, instead, the baby should be scalded to death in the boiling milk the incident would have the element of human interest for the newspapers. And for these reasons the dangers in milk do not strike the popular im-

agination. The results of cure are evident. The effects of prevention seem obscure and this is the one great handicap from which prevention suffers. If Jenner had discovered a cure for smallpox and the cure had been half as effective as vaccination, every one in the land would do him homage. Within the year an alleged tuberculosis cure which set people gossiping on both sides of the Atlantic ended in a mere bursted bubble, as we were to expect; yet it was the cause of an official investigation by our president and senate, through the manipulations of an efficient press agent. But put the tuberculosis situation of this community in the hands of any one of you, with absolute power both medical and police, and the problem would be solved in less than a decade.

Then we need patience, we need tolerance, we need to use the gentle art of persuasion, we need to become more efficient teachers, as we should be always,—teachers. If we fail to tell the people the things we know of these subjects, so little understood, we fail in our quest of "The Holy Grail."

But in the meantime: What is to be the program while waiting for this far-off Utopia? Milk-induced epidemics will persist while the legislature is being educated into passing better regulations governing the milk supply, and while we are educating the dairy workers in the importance of following the directions laid down by somebody competent to give directions. Did you ever stop to consider that a doctor is the only person to whom the health questions of a community should be submitted for solution? It is not true of any other business. If the railroads with their officers and stockholders were allowed to settle that controversy, what do you suppose it would cost you to be carried to Chicago? Suppose the banking fraternity were allowed the privilege of the solution of the currency reform, would the banks get any the "worst of it?" But allow the doctor the right to fix the health of any community and he will legislate himself out of a job.

When all the diseases due to impure milk are counted up, the indictment is a strong one. While pointing out these dangers we must be ever mindful of the fact that our object is not to discourage the use of milk—only to discourage the produc-

tion of impure milk. We want to encourage the use of good milk as one of the best and cheapest of foods. But when in the city of Boston in a single year, 72 cases of diphtheria, 400 cases of typhoid fever, 842 cases of scarlet fever and 2,064 cases of epidemic sore throat are traceable directly to the source of the milk supply, it is time to take cognizance of the fact that anything can happen. An outbreak of five cases of scarlet fever in Taylorville, or proportionally in Chicago, would be an epidemic of magnitude and would claim the attention of the metropolitan press. No epidemic of a fatal malady is a small one.

Cleanliness is the magic word which underlies all sanitation and hygiene, but it has a different meaning than it had fifty years ago. Cleanliness now not only means the absence of dirt and infection but the absence of flies, roaches, ants, rats, mice, etc. If the dairyman has not the inherent sense and habit of cleanliness the produce of his dairy will not only not be clean, but will not look clean; and on the other hand, if he has the inborn capacity to be clean he will immediately fall in line with correct ideas of cleanliness. But don't waste time on the man who is lacking in this quality,—“go after” his product. A few years ago a dairyman began serving his customers in our town with “certified milk,” and he did a thriving business for a time, until he “killed the goose that laid the golden egg” by going to the local dairyman and getting skimmed milk to make his product go farther. Of course the milk was not certified in the first place, because there was no commission authorized to certify nearer than St. Louis. The term is little understood, is technical, but is too well established to be changed now, and there is no need for certified milk in communities like ours, where it usually reaches the consumer in less than twelve hours from its production. And just at this point let me admonish you to see that your dairyman is not mixing his morning milk with the night milk and doing his delivering but once a day. These milkings do not mix well, and the process of mixing leads to rapid deterioration and souring.

In the absence of disease we are in no especial danger of a milk-borne epidemic, if our supply is delivered within twelve hours and a good standard of cleanliness is maintained.

Milk inspection by the average county health officer is another false alarm, as he is about as much qualified to inspect a milk supply as any one of us would be in attempting to qualify as conjuror to the emperor of Hindoostan. If this milk inspection is to be forced upon us in communities of this size, let it be done by a competent inspector from a non-political state department, and then the milk refused in Taylorville cannot be shipped to and sold in Litchfield; not that this has been done, but there is no regulation preventing it.

Every producer should be required to have a license, no matter what the size of his business, and this license should be revokable at any time for just cause. In this country we have become so accustomed to assessing a fine for transgressing upon the majesty of the law that it is a habit even with our higher courts. You probably have never personally known in your community of a license,—saloon or other,—being revoked, yet it is a much severer penalty than the usual \$10.00 and costs.

We naturally come now to the best thing to do in the absence of the ideal. On account of its simplicity, cheapness and effectiveness, pasteurization is the least objectionable method of destroying dangerous germs in milk. It prevents sickness and saves lives. In the varied discussions upon this process it is held up either as a badge of honor or as a disgrace. It is neither; but it is an acknowledgment that under the present regulations raw milk may be dangerous milk, and that heating is the simplest way of eliminating these dangers.

Now what is pasteurization? It simply means the heating of milk to a temperature of 140° F., and maintaining it at this temperature for 20 minutes and cooling quickly. In the ILLINOIS MEDICAL JOURNAL for July, there is, on page 81, a copy of a poster used by the Chicago Department of Health, which states that the bottle of milk is placed in a pail of water, which is brought to a boil. The bottle of milk is then removed and cooled quickly. Now this is the most practical plan for house purposes, and should invariably be done for bottle-fed babies and sick people on a milk diet; and more especially if the milk is more than twelve hours old.

Dr. W. A. Evans in his “Health Hints” re-

cently advised an inquirer to do this regularly until October 1. The object is not to preserve the milk, but to destroy the harmful bacteria. Please don't miss this point: Cool rapidly; because in heated milk, if allowed to cool to the temperature of the room and to remain there for some time, bacteria and their toxins multiply at an alarming rate. Much confusion has arisen from a failure to understand the difference between pasteurization and sterilization. To sterilize milk it is necessary to submit it to a heat of 300° F. for 15 minutes, or to boil it for half an hour on three successive days—both, of course, impracticable. Pasteurization should only be used as a health measure. It is not a redemption process; it should not be used to bolster up bad milk; it can not atone for filth. Pasteurization means only *heated* milk. To the popular mind it means a superior quality of milk. It has been used synonymously with good milk, clean milk, pure milk, certified milk. It is nothing of the kind; it is purely an expedient, not an ideal. Antisepsis was a great improvement in surgery, but asepsis is the ideal. Of course there is no adequate substitute for mother's milk for babies, and if that is not available babies are entitled to the very best and freshest cow's milk that can be obtained and whether such baby's milk is to be modified, or pasteurized or both, is a question for the doctor to decide in each individual case.

Suppose any one of you should treble your weight in one year;—that is just what the baby does under normal conditions the very first year of its life, and the strain upon a digestive apparatus to produce this great growth frequently results in breakdown and ends in disaster. The origin of this demand for better milk was found in the battle cry: "Save the Babies." Most of the awakening of the world to a consciousness of the immense sacrifice of infant life has come during the last twenty years.

Infant deaths at the present time amount to over 20 per cent of the total deaths in all civilized countries. In other words, of every 1,000 infants born 200 die during the first year of life. One-fifth of all the babies never reach the age where they can walk or talk. The steadily declining birth rate makes the subject of infant mortality a question of international importance. The baby of today is to be the citizen after awhile,

along with most of us. Adult death is inevitable; but "The slaughter of the innocents" is preventable. Herein lies the hopeful sign of the problem of pure food.

THE CYSTOSCOPIC AND MICROSCOPIC DIAGNOSIS OF GENITO-URINARY DISEASES.*

WALTER WILHELMJ, M. D.,
EAST ST. LOUIS, ILL.

No special field writes the story any better of the development of medicine from dogmatism, through empiricism, to scientific demonstration, than that branch of medicine known as urology.

Genito-urinary surgery has been established in diagnostic exactness by three great visualizing procedures, microscopy, cystoscopy, and radiography. They have replaced guessing with seeing, speculation with demonstration.

In the symptomatology of genito-urinary diseases subjective symptoms are of but minor diagnostic importance, and as a rule do little more than vaguely point towards the possible source of the trouble as being somewhere in the urinary tract, as for instance a patient may complain of having a pain in his glans penis when the cause of his discomfort is a Cowperitis or a prostatitis. The classical symptoms of a cystitis may be enumerated, but how did the infective agent gain entrance into the bladder? Is the initial site of the infection above or is it below? As the cystitis is only a symptom, the original site of the infection must be definitely located before intelligent treatment can be administered.

With a microscope we are able to gather definite data regarding the particular organism that may be the infecting agent. It is also possible to establish the site of a lesion with remarkable accuracy by the character of the epithelial cells. The character of the lesion can be determined by the variety of cells and intercellular tissues present. Malignant disease can be recognized by the presence of the characteristic tumor cells.

With the cystoscope we are able to explore the interior of the bladder and make a diagnosis of pathological conditions by vision. In certain conditions, as benign tumors and some ulcers,

*Read at the meeting of the St Clair County Medical Society, July 2, 1914.

ete., we are able to administer effective therapeutic measures through the cystoscope directly to the tumor or ulcer as the case may be.

Ureteral catheterization, one of the most important urological procedures, is done by looking at the ureteric orifice through the cystoscope and pushing a small woven catheter through the ureteric orifice into the ureter. This procedure gives us the urine from each kidney separately and determines the relative efficiency of each kidney. This should be established before inaugurating any operative measures on either kidney, as the kidney that is attacked may be the one that is functioning and the remaining one may be a derelict kidney; if this mistake is made it is not a difficult matter to foretell what the result will be.

In a kidney case where the urine presents a pathological appearance the urine withdrawn by the ureteral catheter will tell us which one of the kidneys excreted the urine that gave the pathological appearance to the general specimen.

Injections can be made through the ureteral catheter directly into the kidney pelvis, as a therapeutic procedure, or an opaque solution can be injected that will throw a shadow on a radiograph for diagnostic purposes.

Radiography will be discussed by Dr. Renner as part of this symposium of diagnostic methods in genito-urinary diseases.

Notwithstanding our modern diagnostic methods, errors occur with surprising frequency.

After reviewing case reports of various authors I note that there are a large number of cases operated on under erroneous diagnosis, and that a number of patients have lost their appendices, ovaries, gall-bladders and even uterus with no permanent relief, as the cause of the symptomatology was in the urinary tract.

The cause of erroneous diagnosis can invariably be assigned to the fact that we have not availed ourselves of all the diagnostic methods which are at our command, or that we inadvertently overlooked a real condition during the course of the examination.

Brewer in 1908 reported 57 cases operated on by himself under the clinical diagnosis of renal or ureteral calculus; in only 32 of these cases was the stone found. This is a diagnostic error

of about 43 per cent on the part of a surgeon of unquestioned ability.

Kapsammer showed that of 73 cases of renal or ureteral calculus that came to autopsy at the Wiener Allgemeinen Krankenhaus between 1893 and 1902, only four were diagnosed during life.

Kapsammer also tells us that of 550 cases of pyelitis and pyelo-nephrosis coming to autopsy in only 38 cases was the condition suspected during life, and in 15 of these cases a unilateral infection was diagnosed as bilateral.

At this time I will present the case of Mr. C. B. W., aged thirty; occupation, switchman.

He came to me April 8, 1914, stating that for past three months his urine contained blood at every micturition, and that at times he passed large blood clots, and occasionally it appeared to him that he urinated pure blood; at the end of micturition he suffered a

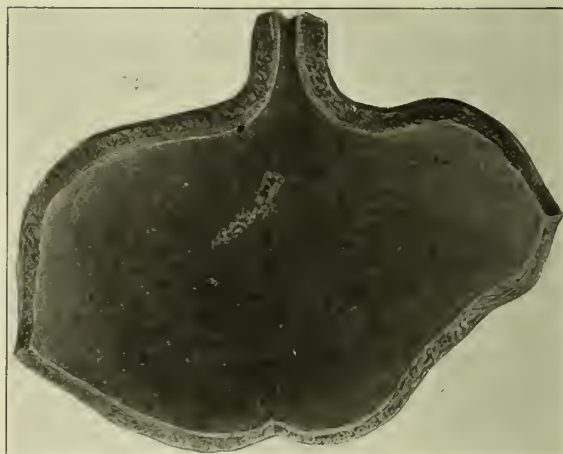


Fig. 1. Base of Bladder with Area of Ulceration.

severe burning pain, accompanied by a moderate amount of straining.

Previous history: Has not had any sickness since childhood. Was married at age of 22. Denies ever having had any venereal disease.

Present condition? Physical examination of chest and abdomen negative. Urine in three glasses; all specimens alike containing blood cells, pus cells and bladder epithelium. Ureteral catheterization reveals both kidney urines clear. Cystoscopic examination: Ureteric orifices present a normal appearance; on base of bladder, immediately posterior, and extending to the middle of the inter-ureteric band was a raised bleeding ulceration, with irregular border, surrounding mucosa thickened and highly injected. Through a ureteral catheter I applied a small quantity of a twenty per cent silver nitrate solution and told the patient to report on the following day.

April 9, 1914: Patient states that he has not noticed any blood since the treatment, but that the burn-

ing and straining after micturition remained the same. I introduced two ounces of a two per cent nargol solution into his bladder and instructed him to retain this for two or three hours before urinating and asked him to report to me at the end of three or four days.

April 14, 1914: Patient reported subjective symptoms the same as on previous visit. I introduced the cystoscope and could see no appreciable change in the condition except that there was no bleeding. I again applied a twenty per cent silver solution and prescribed five grains of hexamethylenamin to be taken every four hours and requested him to report at the end of a week.

April 21, 1914: Patient reported subjective history the same as on previous visit; at this visit and daily for the following ten days I introduced four ounces of a one per cent silver nitrate solution and had him take ten drops of balsam copaiba every three hours. The symptoms remained unaltered.

May 2, 1914: I made another systoscopic examination and found the condition just as at the previous

examination this proved to be a lead pencil that had separated and the depressions and rough surfaces had become covered with urinary salts.

1 and 2. Back of pencil showing deposits of urinary salts.

3 and 4. Showing pencil interior and depression which contained a rubber. White spots are deposits of urinary salts.

5. Pencil with two sides approximated.

The ulceration was where I had previously located it with the cystoscope and appeared as a large boggy exuberant granulation. The wound was closed and a retention catheter retained in bladder for four or five days, and aside from a urinary fistula that remained for several weeks the patient made an uneventful recovery.

I do not wish to apologize for overlooking the foreign body at the numerous cystoscopic examinations, but will admit a gross error of omission in that I neglected to make an inspection of the superior surface of the bladder and that when the distending fluid was in the bladder the foreign body was on top of the solution.

After the operation I questioned the patient regarding the finding of the foreign body and he stated that something had been introduced into his urethra while he was on a debauch in August, 1911; that he never knew what it was that had been introduced, as the maid that had introduced the object had departed when he awoke, and that he had been under the impression that he had passed the object while urinating. I do not discredit this story, as one end of the pencil seems as though it at one time contained a rubber as is commonly seen at one end of a pencil, and what he passed, probably was the rubber that had become separated from the pencil and he thinking this possibly all that there was, removed the incident from his mind and he thought no more about the matter.

Murphy Building.

"WHY?"*

W. A. WISEMAN, M. D.,
CAMARGO, ILLINOIS.

When I was a student in Jefferson Medical College in the years 1884-5 and 6 pilocarpine was prescribed as an abortifacient for erysipelas, by Professors DaCosta and Bartholow. This was undoubtedly purely empirical, for I remember at



Fig. 2. Pencil Removed from Bladder.

examination with the exception that there were several small areas slightly bleeding. I concluded that this was a papilloma and recommended to the patient that he should go to the hospital and have a cystotomy performed, the papilloma destroyed, and if conditions indicated, a partial cystectomy done. To this he consented and entered the hospital May 9, 1914.

May 11, 1914: Operation: Bladder was distended with a two per cent boric acid solution, a rectal bag was introduced into the rectum and distended with air, and an incision three inches long immediately above the symphysis pubis made; the peritoneal fold was reflected until sufficient bladder area was exposed for the operation. The bladder was incised and the distending fluid allowed to escape. The anterior bladder wall being suspended with traction sutures the cavity was explored and two foreign bodies were removed, the dimensions of each being five-sixteenths of an inch wide and two inches long. Upon closer

*A paper read at the Douglas County Medical Society April 3, 1914.

that time Professor Gross was hurling his anathemas at those who refused to accept the germ theory.

We find also by referring to Professor DaCosta's *Diagnosis*, written in 1884, this language: "The malady, erysipelas, has been claimed as an infectious disorder, due to specific bacteria; but this is not certain." Professor Bartholow in his *Practice*, 1883 edition, says of erysipelas: "The most influential factor in its propagation is contagion."

Now Strumpell says in his etiological definition of the cause of erysipelas, written in 1911: "The cause of this inflammation, as was first shown by Fehleisen, is a local infection of the streptococcus pyogenese."

Note the difference in the positive statements of the modern writer and the suppositional statements of the two equally prominent but a few years more ancient.

Pilocarpine an abortifacient! Why? Well we are left groping till 1895. Doctor Waldstein of New York while abroad published in the *Berliner Klinische Wochenschrift* the following concerning the physiological effects of pilocarpine: "An alkaloid contained in the American shrub jaborandi which has the effect, when injected into the body, of increasing the number of white blood corpuscles produced by the lymphatic glands. Now these white corpuscles are the warrior cells of the body that in some way or other overcome the microbes of disease, probably by swallowing them outright."

So wonderfully enthused was Waldstein over the discovery that pilocarpine would increase the number of leukocytes and at the same time discovering their phagocytic action, that he predicted the overthrow of the army of bacteria carrying on the destructive warfare for tuberculosis, lupus, cancer and in fact had some degree of assurance that every species of bacteria that went swaggering around would meet its Waterloo when it came up against such increased numbers of phagocytes as would be created under the magic wand of pilocarpine. Coming as I did straight from the clinics of Professors DaCosta and Bartholow it was perfectly natural that I should follow their teachings and give my first and following patients 0.1 gr. pilocarpine hypodermatically and follow up with doses of fluid

extract jaborandi by the stomach of sufficient size to keep up the characteristic physiological action, and I might add, it has been very satisfactory.

Winfield Scott Hall in his *Physiology* defines the function of the white blood corpuscle as follows: "These cells carry solid particles from one part of the organism to another. They fill breaks in the continuity of tissue and with fibrin build new tissue into the wound. They surround foreign bodies, protecting the tissues from extensive lacerations. The leukocytes act as the scavengers, protecting the organism as far as possible from the invasion of pathogenic microbes. These are usually engulfed, digested by the leukocytes, and expelled from the system. This is called phagocytosis. Leukocytes have also the power of being drawn to or being repelled from certain chemical or bacterial products; this is called chemotaxis. The leukocytes have also the power of forming antitoxins or bacterial poisons to neutralize bacterial toxins, if not to destroy the bacteria themselves."

If you have followed me closely up to this point you will have discovered what an important part the white blood corpuscle plays in preserving and defending the human economy.

I have purposely drawn out these quotations and citations to come to my subject, "Why?" Our physiologists teach us that in the normal individual who is in good health there are about 5,000,000 red blood corpuscles and 10,000 white ones to each cubic millimeter. Why is it then that if this equilibrium is disturbed and our patient shows up with an increased number of white corpuscles or a diminished number of red ones, we immediately try to lessen the number of white ones and increase the number of red ones? We have all had this experience of the chlorotic girl, or the anemic woman and hurriedly exhibited iron, arsenic, manganese, etc., that we might restore this equilibrium. Does not this seem inconsistent? If the white blood corpuscle is such a brave little soldier, constantly armed cap-a-pie and ready for all sorts of warfare in our defence, why limit his numbers? Why not the more the better? Why are some detailed on phagocytic duties? Who or what decides who shall be phagocytes and go to the front and valiantly fight and die heroically, perchance, and

who shall remain at home and be mere civilian leukocytes?

This is my first why. I have a second coming.

All our standard text-books agree that intestinal hemorrhage occurs in from 3 to 5 per cent. of all cases of typhoid fever and that it must be regarded as a serious complication. Bartholow writing on the subject of hemorrhage in typhoid fever says, "If it occurs during the first week it is a result of the increased pressure in the intestinal tissues—a necessary product of hyperemia; if it occur in the second or third week, it is caused by the sloughs, a vessel being laid open by their detachment; if later, the vessels are eroded by the spread of ulceration. The notion has been entertained by some that a considerable hemorrhage might have a favorable influence over the progress of the case, but the statistics are opposed to such an opinion, those of Lieberman, for example, showing that the mortality is three times greater in those having this complication." J. C. Wilson, in his article on typhoid fever in "American System of Medicine" by Loomis and Thompson, agrees upon the whole with Bartholow and concludes by saying: "It occasionally happens that the amelioration of the general symptoms occurring after moderate hemorrhage from the bowels persists, and this accident marks the beginning of convalescence." Strumpell agrees in the main, but is more explicit, as follows: "If a marked intestinal hemorrhage happens, the temperature generally falls several degrees, and the less frequent instances of severe epistaxis have the same effect. If in female patients, abortion or premature delivery occurs; we often observe a similar considerable fall of temperature, even without severe attendant hemorrhage. Often hemorrhage is directly followed by recovery from the disease." I desire to add my experience of last winter to these quotations, and then my subject, "Why?" It fell to my lot to have some cases of typhoid fever. I had a very decided concealed hemorrhage in three of them. The diagnosis was made of concealed hemorrhage by the usual symptoms, blanched face, almost pulseless, cold, moist skin, subnormal temperature, disappearance of meteorism and all the attendant nervous phenomena. I might digress enough to say the treatment was to put the bowels in splints by the use of opiates

and the heroic administration of adrenalin. The diagnosis was confirmed in about four days by the discharge of a pan full of a dark tarry clot. In one of my cases the hemorrhage occurred in the first week, and in a few days all the severe symptoms returned and the fever ran its due course, seeming not to have been influenced in the least by the hemorrhage. In the other two cases the hemorrhage occurred late in the third week. None of the severe symptoms ever occurred, not a fraction of temperature elevation nor any of the mental or nervous symptoms. On the other hand I never witnessed as rapid convalescence as occurred in both cases. Why? Why will convalescence be established if the hemorrhage is late in the case and why will the fever with all its attendant symptoms be reestablished if the hemorrhage occur early in the case? When Lee had that wonderful army of confederates on the south side of the Rappahannock and was threatening to cross and invade the North and endanger the very life of the republic, would it not have been just as good generalship for Mead to have abandoned his fortifications, and leaving a thin line of men to try to deceive Lee, take the bulk of his army and flee to the mountains of Pennsylvania? Is it not a parallel case? We have here General Bacteria Typhosus marshaling his myriad hosts. For weeks the conflict has been most sanguinary. Pyer's patches and the solitary glands have been occupied by the enemy. They are now throwing off vast numbers of sloughs, mute evidence that the phagocytes are being put to rout and that soon the citadel must fall. Adipose tissue has been absorbed and our once happy, rosy checked girl looks like the ghost of a night-mare. Dissolution seems near at hand. Our patient by a hemorrhage loses nearly all the vitalizing fluid in the body. There is but a modicum of this life sustaining and life giving principle left. Presto. She changes for the better and convalescence is established much more rapidly than if the hemorrhage had not occurred. Why?

DISCUSSION

I believe I know the demerits of this paper better than any one else. Fearing you would pass it by as irrelevant or too superficial, I have anticipated a little and formulated my discussion in advance. I want to state in the first place, there is a gross misstatement in the first division of this paper. I discovered it but

thought to let it stand and see if you would find it. If you did I could bear the criticism. If you failed to find it, it would be *prima facie* evidence that you are no more familiar with this subject than I am. The misstatement is where I say, "The white blood corpuscles increase and the red ones decrease in case of prostrating disease." The truth is they both decrease in numbers except in leucocythemia, where the white ones increase.

As to why pilocarpine should increase the number of white blood corpuscles produced by the lymphatic glands and not those of the other leucocyte producing glands I do not know. Indeed I do not know that they cause an increase at all. And again whether it is really an abortifacient of erysipelas, I do not know, but I am convinced that an erysipelas runs a much milder course when the initial treatment is as indicated in this paper.

The study of the white blood corpuscle and its phagocytic action is indeed a most interesting one.

Now as to the second division of this paper. I believe the underlying principle on which the anti-toxin theory is based is; that no organism can survive when submerged in its own excreta. The foundation on which the superstructure of autogenous vaccination is constructed, is I believe, that no organism can live if buried beneath the dead bodies of its relatives.

Taking this view of these two very important therapeutic measures I believe we can explain why the early hemorrhage in typhoid fever is followed by a recurrence of all the serious symptoms, while a hemorrhage in the later stages is followed by a subsidence of symptoms and a rapid convalescence. We understand now that all, so-called self limited diseases, are such because of the fact that the invading bacteria develop to such uncountable numbers that their excreta submerges and destroys many of their kind, while these dead bacteria in their turn overlies their relatives and in this manner destroy so many that the phagocytes can overmaster the rest of them.

Now in typhoid fever the hemorrhage occurring in the early stage can not accomplish this because of the limited number of bacteria and their excreta not being in sufficient quantity to weaken their own ranks. But on the other hand the hemorrhage occurring late in the disease when the blood current is simply swarming with bacteria, and loaded with their excreta and dead bodies, which is exerting a detrimental effect on the live bacteria that are striving so strenuously to carry the breastworks that are being guarded by the leukocytes. Now since it is the red corpuscle that is receiving the hardest onslaughts of the bacteria and since their motion is much more rapid than that of the white corpuscle it follows naturally that there are many more red corpuscles lost in the hemorrhage than there are white ones. Consequently there are many more live bacteria lost with the hemorrhage than there are excreta or corpses. And for this reason the phagocytes, aided and assisted by the remaining excreta and dead bacteria, easily exterminate

the remaining live bacteria and hence no return of serious symptoms and a speedy recovery.

KIDNEY INFECTIONS.*

J. C. R. WETTSTEIN, M. D.

EFFINGHAM, ILL.

During the last two decades there have been rapid changes in our views of the pathology and bacteriology of the kidney, due principally to the exhaustive investigation of the French school. Notwithstanding, however, that much light has been thrown upon the causes of these diseases, the variety and manner of infection, their scope and line of march, the clinician is still constantly at a loss to know in any case before him whether one of these affections exists alone, or whether two or more are combined. The diseases of this variety, however, that have come under my personal observation, were usually combined instead of existing as one single, well defined disorder. As the scope of this article is clinical I will endeavor to consider these diseases from a clinical standpoint, whatever may be their etiology.

I will, therefore, not include in this consideration tuberculosis and calculus, although they have been such frequent predisposing causes of renal suppuration. The causes of these suppurative diseases of the kidney are practically the same, whether the inflammation begins in the pelvis and extends to the parenchyma, or whether it begins in the parenchyma and extends into the pelvis. They are predisposing and active causes. The former include, in the first place, debilitated conditions of the body which favor suppuration; infectious diseases; any factor leading to congestion, as traumatism from direct contusion, the irritation of drugs, exposure to cold and wet and displacement of the kidney due to great mobility. The active causes of these suppurative conditions are the various pus producing germs, the most common of which are the colon bacillus, staphylococcus, streptococcus, proteus, vulgaris, bacillus pyocyaneus.

The gonococcus is a pus producer, but it is rarely the active microorganism giving rise to the renal suppuration.

The tubercle bacillus is not considered as a pus

*Read at a meeting of the Clark County Medical Society, June 12, 1913.

producer, but is productive of lesions that are favorable for other infections. The infectious agents that produce renal suppuration may be either hematogenous or lymphogenous, or they may reach the kidney by extension of the suppuration from neighboring structures (infection by contiguity), and finally the infection may travel upward from the lower portion of the genito-urinary tract, as the urethra or bladder, ascending infection, or infection by continuity.

The ureteral, lymphogenous, and hematogenous routes of these infections have been carefully investigated by Albarran and others of the Necker School, who have concluded that the circulatory route is the most common. Pus producing micro-organisms in the blood circulating through the kidney or its pelvis are not likely to give rise to suppuration without the presence of congestion due to some of the predisposing causes just given, but if congestion is present, the germs having passed through the circulation and entered the urinary tract, find the pelvis a soil adapted for their settlement and growth.

Pyelitis usually begins with a simple catarrhal condition of the mucous membrane of the pelvis, with congestion of the superficial capillaries and an excess of mucus. As infection takes place, the mucous membrane takes on the appearance of a turbid gelatinous lining, which is rapidly followed by a purulent exudate and thickening of the wall. The thickening and roughness of the pelvic wall are more marked in tubercular cases, and the ulcerations are of a more active type. There is also great thickening at times in calculous pyelitis, as well as erosions and capillary hemorrhage.

When the pyelitis is due to an ascending infection, there is greater dilation of the pelvis, its surface is smoother and thinner and the capillary congestion is less. The amount of urine and pus is considerable and the admixture thinner in the descending cases. Capillary congestion, engorgement, erosions, and ulcerations are also less marked.

It must be remembered that the urinary retention takes place in varying degrees where there is obstruction due to tubercular lesions or calculus, but that the retention is greater when there is obstruction due to interference with the urinary flow in the ureter proper. When the pyelitis ad-

vances to such a degree that there is retention of urine and pus in the renal pelvis, the parenchyma is also generally involved and the trouble becomes a pyclo-nephritis or pyonephrosis.

The symptoms of pyelitis are few and at times absent when it exists alone and not associated with calculus, tumor, tuberculosis or abnormal renal mobility. There is sometimes slight frequency of urination, due to a polyuria, or there may be a vague pain or a heavy feeling in one or both loins. The pain is more intense and colicky when the pyelitis is due to calculus or to movable kidney. Hematuria is rare in pyelitis unless there is growth or stone present, when it is common; whereas in tuberculosis it is still less frequent. Pyuria exists, but is of a mild degree when the pelvis is alone involved; but when a cystitis also is present, the pyuria is more marked, owing to the addition of the pus produced in the bladder to that coming from the pelvis and ureter. Marked frequency of urination is due to an associated cystitis, probably tubercular. Attacks of nausea, vomiting, chills, fever and sweating are generally due to movable kidney or renal calculus, with attacks of retention and absorption of pus. Febrile attacks also point to an extension of the inflammation to the kidney substance and we must, therefore, always be on our guard against such an involvement.

In palpating the kidney in pyelitis, a slight tenderness may be experienced by the patient. There is usually no rise of temperature. There is no enlargement of the organ unless a complication is present, such as retention of urine and pus in the pelvis, or an extension to the kidney parenchyma.

The urinary examination shows in the chronic cases, such as are usually observed, a urine of low specific gravity, somewhat increased in amount, containing considerable pus, serum and nuclear albumin, pelvic epithelia and a few blood cells and hyaline and granular casts. In case the disease is due to tuberculosis, the bacilli may be found in the urine; while if due to stone, crystals may be found in masses of pus and mucus, and the specific gravity is higher.

In the differentiation of pyelitis and cystitis, there are some rather interesting points. In chronic cases, the daily amount of urine and

urea are always normal, unless the patient has been given a large amount of water or diuretics. The reaction is generally alkaline, or if not, it soon becomes so, due to the colon or tubercle bacillus. The amount of albumin does not exceed that due to the pus and blood. There is a muco-purulent sediment which coagulates quickly. Microscopically, pus and a large number of bladder epithelial cells are found in the urine. The large amount of epithelium present is striking, rather than any particular type. There is no renal pain, nor tenderness on pressure over the kidney.

In chronic pyelitis, there is polyuria, the sediment is more diffuse and does not coagulate, or certainly not so quickly. The urine is usually acid in reaction and contains but few epithelial cells. The importance of the colon bacillus is not sufficiently appreciated; it is very frequent and its recognition is not difficult. A cystoscopic examination will always give information concerning the condition of the bladder.

Purulent pyelitis. Pus in the pelvis of the kidney is one of the surgical affections of the kidney by no means always diagnosed. What with symptoms and signs, indigocarmine and phenosulphonephthalein tests, cystoscopy, and roentgenography, 'twere disappointing indeed if congenital absence or displacement of the kidney, renal and ureteral calculi were not more readily diagnosed than previously. Yet here mistakes can occur. A small calcified gland near a ureter may very closely simulate a small stone in the ureter, and may press on this structure and interfere with the passage of a bismuth-loaded bougie or ureteral catheter. Tumors of the kidney at some stage are generally readily palpable. Cystic kidneys or sarcomata found in the young are likewise, as a rule, readily made out and are for the most part inoperable. Such a tumor on the left side may be at first confounded with an enlarged spleen. Unfortunately very frequently both sides are affected. A kink in the ureter causing a hydronephrosis and a symptom complex known as Dietl's crisis may not always be easy of diagnosis.

All these conditions are apparently more thought of than a simple pyelitis. When the kidney pelvis is infected, or a beginning tuberculosis of the kidney exists, or the starting of an abscess

of the kidney, or surgical kidney, whether from within its structure or from an ascending infection, a very serious matter confronts us and one not easy to reach.

Pregnancy is a state which seems to favor the production of a pyelitis, and that without a urinary cystitis. Pressure of the enlarged uterus seems to favor the change of infection, or an infective agency from the neighboring intestinal tract, in the nature of the colon bacillus or bacillus aerogenes capsulatus, may start up the trouble. Virulent organisms like staphylococci and streptococci may enter structures about the kidney on account of the presence of a severe infected laceration. Specimens from such a case were not long ago exhibited by the Pathological Society of Philadelphia. In other cases the origin is obscure, although it seems possible to exist in association with an adjacent salpingitis.

In cases of this affection of the urinary pelvis, there is considerable backache, early exhaustion, frequent micturition, and sometimes "ardor urinae." There is local tenderness and possibly fullness in the lumbar region to the side of the spinal column. An x-ray plate will show a shadow if the case has advanced to a pyonephrosis, although this may be hard to distinguish from an enlarged or ptosed kidney. There is an increase in pulse rate and may be a slight rise in temperature.

The urine in a simple purulent pyelitis will be acid, while in a cystitis it is alkaline, and of an ammoniacal odor of decomposition; it will be of rather high specific gravity and rather abundant, without the presence of glucose; it is generally light in color. There will be found plenty of white blood corpuscles, and also microorganisms are seen stained in a catheterized clean specimen. A specimen on standing a short time may show a white tenacious sediment consisting of a mass of white blood corpuscles. Such a picture of symptoms, signs, and laboratory findings should make us suspicious of the trouble.

Then comes the important question, What is to be done? It will be found that these cases of themselves go from bad to worse. Permit me to quote an interesting case illustrating this.

A woman of about thirty-five years of age gave a history pointing towards tubo-ovarian disease, and examination confirmed this. Chronic inflamed appendages were removed by a surgeon. The patient

seemed at first to be making a fairly uneventful post-operative recovery, but in the course of a week, her temperature went up three or four degrees, her pulse became bad, and it was as at first feared there might be some further trouble at the seat of operation, or an inflamed appendix, as that organ had not been removed. An examination of the case and of the patient's urine led the writer to seriously consider a purulent pyelitis. So it was decided to open up the case again with the intention of also opening up the loin if the surgeon, now on duty, found no trouble with the appendix. The appendix was found to be apparently normal but was removed; the patient, though in bad shape, was turned and upon opening the pelvis of the kidney by way of the loin, a great amount of bloody urine and fluid evidently tinged with beginning pus-formation was evacuated. This was drained and the patient soon made a good recovery and had no trouble since.

A similar case in a young woman resulted in recovery after a nephrectomy. The kidney itself was here involved.

There is another point of interest in the case described at length, and suspected in another one where there was in addition a marked anemia. This is the condition of the adjacent adrenal. These patients showed some bronzing of the skin in addition to the signs about the kidney. At autopsy we often find a slight softening or darkening of the interior of one or both adrenals when removed, and it is questionable whether or not these bodies may suffer more frequently than we imagine inflammatory conditions apart from tuberculosis, just as the parathyroids in the neck. It is also coming to be a question as to whether surgery cannot do something for a badly diseased suprarenal gland or mild trouble of both these glands.

In surgical exploration of the pelvis of the kidneys and adjacent structures, the object, as in many cases that must have surgical interference, is to prevent destructive influences from proceeding further, even, it may be, to the extent of infecting a whole kidney or the entire system.

My object in presenting this paper is to call the attention of the general practitioner to the fact that a more careful examination of some of his obscure cases would enable him to make an early diagnosis in some of them at least, of diseased conditions of the urinary organs amenable to surgical treatment, if they are recognized early enough. The field of kidney and ureteral surgery no longer remains the domain of the

specialist or of the general surgeon alone. At the present day the patient has the right to demand that his attending physicians have sufficient knowledge of the clinical manifestations of tuberculosis, neoplasms, calculous disease and infections of the kidney to enable him at least to think of the urinary organs as being the seat of the trouble for which he has been consulted and to concentrate his attention toward making the correct diagnosis. If his own resources are exhausted, he should summon to his aid the urologist or the surgeon who has made a study of this special field. The day has passed when a patient suffering from chills, fever and sweats can any longer be treated with quinin on the blind theory that malaria has been the cause of these symptoms. The constant presence of pus in a patient's urine can no longer be diagnosed as due to cystitis, while the patient's golden chance for the discovery of a tuberculosis of the kidney is passing. In a similar manner the diagnosis of stone in the kidney does not any longer depend on the presence of renal colic alone, for this disease may present itself under as serious a picture as almost any of the forms of febrile diseases met with in the practice of medicine.

Up to within recent times it was a generally accepted teaching that one should not make a diagnosis of gall-stones unless the patient had passed through a typical attack of colic or jaundice had been present. It took a long time to eradicate this notion and today we know there are many cases of disease of the biliary passages without either colics or jaundice. In an analogous manner the teaching that every case of calculous disease of the kidney must have a colic, and similar erroneous notions, have greatly retarded the possibility of making a diagnosis in many of the surgical affections of the urinary organs. In many cases of the latter there are so few symptoms pointing to the kidney that it is only by a careful process of elimination that a diagnosis can be made. The principal fallacies still extant are:

1. That every case of kidney and ureteral stone manifests its presence clinically by a typical renal colic so familiar to all.
2. That every attack of renal colic neces-

sarily means that the patient has stone in his kidney or ureter, or both.

3. That every patient with pus in his urine, especially if he also has increased frequency of or painful urination, must also have a cystitis, deep urethritis, etc. He is compelled to run the gamut of every known method of local treatment before thought is given to the possibility of a kidney tuberculosis being the cause of his purulent urine.

4. That when a patient has fever, of whatever type, be it continuous, remittant or intermittent, if typhoid or malaria are not diagnosed or eliminated, the case is so often set down as one of "obscure fever" or auto-intoxication, or what not. In some of these cases the absence of any localizing kidney signs will, I grant, tax the ability of the most skilled diagnostician. A careful examination of the blood will soon eliminate the presence of malaria or typhoid, but the possibility of such "obscure fever" being of renal origin is seldom thought of.

Before taking up the detailed consideration of some of the principal surgical diseases of the kidney, I desire to emphasize the following points gained from a relatively small experience in this field:

1. That there are many cases of surgical diseases of the kidney without a single sign pointing directly to the kidney as the source of these symptoms.

2. That there are many cases of obscure fever which have their cause in the kidneys.

3. That there are many cases of stone in the kidney or ureter, or both, which never have the symptom known as renal colic, and, further, that there are many other conditions besides kidney or ureteral stone which can cause attacks of typical renal colic.

4. That many cases of kidney disease—especially is this true of tuberculosis—cause more bladder than kidney symptoms.

5. That the first sign of some cases of kidney disease—especially of tumor—is a severe hematuria.

Diagnostic Aids. In diseases of the bile passages amenable to surgical treatment, we can make a diagnosis in the greater number of them by a careful study of the history and our local findings. We need aid at times in the examina-

tion of some of the secretions like the gastric contents, which can be readily obtained through the use of the stomach tube. Examination of the feces, blood or urine, may be also necessary in order to make a diagnosis. All these data, however, can be obtained by one who has not had special training and without the use of what may seem to some, complicated instruments. In this respect the diagnosis of affections of the urinary organs which can be relieved by any surgical treatment differs greatly from that of the other organs, especially from that of the bile passages, to which we can best compare them. The use of special instruments and other diagnostic methods to aid in the recognition of surgical diseases of the urinary tract is one of the chief reasons for the rapid advances made during the past ten years. On the other hand, many of these diagnostic methods, especially the use of the cystoscope and ureteral catheter have impressed the general practitioner as so difficult to employ that they seem impracticable. If I can only leave with you today the fact that radiography of the urinary organs, cystoscopy and ureteral catheterization are absolutely indispensable in making a diagnosis of the affections of the kidney, ureter and bladder, I will feel well rewarded. No experienced operator today would consider the exploration of the kidney or ureter for a stone without a positive shadow. The use of the wire bougie or collargol injection will confirm the fact that the shadow is due to something inside of the ureter or kidney, and not caused by one of the many conditions, both normal and pathologic, which can give rise to extraneous shadows easily confused with genuine ones. A radiograph of the urinary tract can only be satisfactorily taken if the patient has been properly prepared and if the radiographer has had experience in this special field. The pictures which we usually take at St. Anthony's Hospital are one covering the upper urinary (kidney and upper ureter) and a second one which includes the lower tract (lower ureter and bladder).

The other two special methods of diagnosis, cystoscopy and ureteral catheterization, require, it may be granted, special training. If we recall the fact that in 90 per cent of all cases of tuberculosis of the kidney the disease is present

on only one side at an early stage, and that if we can remove the diseased kidney the patient can be permanently cured, one can readily see what a debt we owe to the cystoscope, which will tell us at a comparatively early period that the patient's complaints are not due to a cystitis, but to changes around the ureteral orifice of the affected kidney which will often allow a positive diagnosis of tuberculosis of that side to be made. The cystoscope tells us whether the disease is in the bladder or the kidney, and when we summon to our aid the accurate collection of the urine separately from each kidney through the use of two ureteral catheters, we can determine not only which kidney is involved, and the nature of the disease, but can tell whether the kidney is in a normal position, whether there is only one kidney, or an anomalous shaped one (horse-shoe), and finally, the amount of destruction of the kidney and the exact work each organ would do if its mate were removed. These are all facts which we must have today before we can make a diagnosis and consider an operation. But your own inability to employ these methods should not hinder you from giving every patient the benefit of them. I have indicated in a general way what these newer methods of diagnosis have done for us. We cannot rely on them alone, but need a good history of the case, a careful analysis of the blood, urine, etc., and a most thorough examination of the patient today as in the past. The cystoscope, ureteral catheter and x-ray have done for the diagnosis of surgical diseases of the urinary organs what the ophthalmoscope has accomplished for diseases of the eye and some of the affections of the brain. It tells whether the trouble is in the eye or further back in the brain. The newer methods of urinary diagnosis tell us whether the trouble is in the lower urinary tract (urethra, prostate, seminal vesicles and bladder) or further up, in the upper tract (ureter, kidney pelvis and kidney parenchyma).

Owing to lack of space and time, I cannot give you the details of the diagnosis of surgical diseases of the kidney, but shall content myself with a brief account of the principal clinical pictures under which the most important of them appear.

It is not my purpose today to weary you with a tedious recital of the principal symptoms and

methods of treatment of all forms of surgical diseases of the kidney.

In conclusion I wish to note a few of the most important infections that attack the kidneys secondarily. First, I wish to dwell upon acute and chronic tonsillar infections. Invariably you will find in all tonsillar manifestations some form of bacterial invasion to the kidneys through the hematogenous route. These cases come to us complaining of urinary disturbances, backache, headache, languid feeling, a loss of appetite, rapid heart. Urinary findings will show albumin, probably casts, red blood cells and bacteria. Next in order to the tonsils comes the appendix. The same manifestation is also true in gall-bladder infections. In our hospital work in following out a score of cases, we have found that where the tonsils have been infected, the appendix also shows pathologic changes. Next in order of infection will be the gall-bladder, through not only the blood channels, but also through lymph channels. In any of these three infections, the kidney is bound to become infected, causing your patient a decided train of symptoms. Gentlemen, whenever you find a tonsil, appendix, or gall-bladder infection, you can safely tell that patient that there is a pathologic change going on in the kidneys.

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ACUTE ULCERATIVE COLITIS.*

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Scrutiny of the literature upon the subject of colitis reveals the fact that new data upon the condition are constantly being discovered and that any definite conception of its many forms in their relationship to each other and to other diseases cannot as yet, be formulated.

It is, according to P. Lockhardt Mummery,¹ a name which is very loosely used to describe a number of quite different conditions.

No attempt will here be made to even rehearse the various classifications, some of them very

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elaborate, which have been made of diseases of the colon. For the convenience of these remarks they will be divided into the ulcerative and non-ulcerative, and of these, only the ulcerative form will be considered. Still, as Sidney Phillips says,² there seems no definite dividing line between acute colitis with and without ulceration, and there is certainly a stage of acute colitis before ulceration begins, hence any consideration of the ulcerative form will necessarily involve a conception of antecedent processes. It must be regarded as a dynamic and not as a stationary condition and subject to all the possible changes and modifications imposed upon it by the living organisms.

The ulcerative forms of colitis may be classified upon etiological grounds as follows:

1. Dysenteric; of which Butler³ recognizes five varieties.

(a.) Catarrhal.

(b.) Acute specific, due to the bacillus of Shiga and its allied forms, among which may be mentioned the organisms identified by Kruse in Germany and the one discovered by Flexner and Strong in the United States.

(c.) Amoebic.

(d.) Diphtheritic; which is simply a form of the disease in which there is formed an exudate or pseudomembrane, with possibly, necrosis.

(e.) Chronic.

2. Due to acute infectious diseases; typhoid, cholera, diphtheria, sepsis, pneumonia, acute pemphigus, pellagra.

3. Chronic infections; tuberculosis, primary and secondary, syphilis, gonorrhea, actinomycosis.

4. Constitutional diseases; leukemia, scurvy, gout.

5. Stercoral.

6. Toxic; as in nephritis and in poisoning by mercuric chlorid, arsenic and other chemical irritants.

7. Catarrhal; occurring in the course of catarrhal inflammations of the intestinal mucous membrane.

8. Cancer.

9. Myiasis has been noted as a cause.

10. The *Balantidium Coli* is mentioned by

Wherry⁴ as playing an important part in the causation of many widely distributed cases.

11. The Bilharzia is said to be rarely a cause of colonic ulcers.

12. Embolism and thrombosis.

13. Traumatism.

14. Ulcerative colitis.

Beck⁵ states that, according to German authorities, the term ulcerative colitis was coined by Boas in 1903.

According to Kemp,⁶ a special form of ulceration was first described by Hale White in colitis occurring especially in asylums and other institutions. Kemp regards the greater percentage of them as true dysentery. But he quotes Osler and Tuttle as opposed to this opinion, both regarding it as non-dysenteric.

Herbert P. Hawkins,⁷ in a paper on the "Natural History of British Ulcerative Colitis," gives it as his belief that this disease, both the epidemic disease in asylums and the sporadic disease in the open, is a relic of the dysentery which covered the whole of Europe in the 17th and 18th centuries.

Phillips² is inclined to believe the disease a clinical entity, and states that the specific organism of colitis, if such there be, is as yet undiscovered.

Regarding the etiology of those cases in which the cause is not apparent, Tuttle⁸ says that the condition seems at times to originate suddenly and without any premonitory symptoms. He quotes Cowan, Ackland and Targett who claim that ulceration of the colon may be due to disease of the central nervous system, and says that White has reported two cases which seem to corroborate that view. He states that Ackland and Targett believe these ulcerations due to trophic neuroses.

Edward Martin,⁹ in a paper on "Affections of the Colon," states that in health there is apparently little water absorbed from the fecal mass by the large intestine, but that this condition does not obtain when the mucous membrane of this organ is either acutely or chronically inflamed, or when through muscular atony or displacement there is colonic stasis. Under such circumstances the function termed by Reichert biosmosis, in virtue of which a selective action is exerted by living cells upon permeating fluids, no

longer remains protective, and toxins introduced into the mouth or engendered in the intestine by bacterial action are readily absorbed. He states that in addition to its normal function of absorbing water, the large intestine has an eliminative function, and that there is reason to suppose that many of the ulcerative lesions are those of elimination rather than of absorption. He refers to the studies of Flexner and Sweet, who by subcutaneous injection of the toxic products obtained from the Shiga bacillus, produced intestinal lesions in rabbits similar to those of human dysentery. The toxic material was evidently secreted into the intestine and the lesions were apparently those of excretion and not of absorption. When the common bile duct was ligated the colonic lesions did not develop. The authors conclude that of all the circulatory poison at any one period, a fraction only is eliminated by the intestinal wall, while the larger amount passes out of the circulation through the liver. This larger fraction entering the intestine with the bile is then partly reabsorbed, only to be subjected in turn to the same series of events, and the intestinal lesions are gradually developed by successive acts of excretion. He mentions a series of experiments conducted by himself with mercuric chlorid and ricin, corroborative of these findings. He quotes Saxon, who, in experimental research upon colitis due to corrosive sublimate poisoning, demonstrated the absence of colonic lesions after bile exclusion.

Saxon obtained from the bile more than twenty times the amount of mercury recovered from the combined urine and feces, and believes that the intestinal lesions are not caused by the direct excretion of the poison into the intestinal canal but by its resorption after being excreted by the liver and carried to the intestinal lumen by the bile.

In passing, may we not see, in these findings, a ready explanation of the relief often obtained in operation for drainage of the gall sac from those obscure toxic conditions among which may be mentioned many cases of intractable chronic gastritis?

As possible predisposing factors in the causation of colonic ulceration, are then to be considered:

1. The presence of a tropho-neurosis.

2. Absorption by the bowel wall of toxic material from the intestinal contents.

3. Elimination into its lumen, by the bowel wall, of toxic material present in the circulation.

Time will not permit a discussion of the widely different pathologic conditions described by the various observers of these lesions.

The onset may be abrupt or gradual, with or without rigor or nausea or vomiting.

At first, there may be either mucus or blood in the stool or neither. Later, both as well as pus are always present. Diarrhea is constantly present. Abdominal pain nearly always so. The abdominal pain may precede the diarrhea or vice versa. The number of stools may be anywhere from five to fifty or more a day. There is usually tenderness on palpation over the seat of the lesion.

As to diagnosis, Boas¹⁰ says that the detection and identification of ulcers of the intestine present many difficulties. Killiani¹¹ states that all ulcers of the intestinal tract have this in common, that it is practically impossible to make a precise diagnosis.

Tuttle⁸ says that it is likely to be confounded with but three conditions; dysentery, typhoid and malignant disease of the colon. From dysentery it is distinguished by the presence in the latter condition, of rectal tenesmus, a constant desire to use the stool which the movement of the bowels does not relieve. From typhoid, by the absence in the latter disease of abdominal pain, the positive Widal, the splenic enlargement and course of the disease. From malignancy, by the gradual onset, by constipation rather than diarrhea, the absence of fever except at the very last and the peculiar odor of the stool.

Phillips² who reports thirteen cases and discusses the condition at length, attaches the greatest importance in diagnosis to the acute abdominal pain and the presence of leucocytosis. He says the diagnosis is easy if one remembers that there is such a condition as acute ulceration of the colon. Tuberculosis so acute as to simulate acute colitis, he says, will not fail to yield some more distinctive evidences of itself than those common to it and acute colitis.

Where the process extends to a portion of the bowel accessible to observation, sigmoidoscopy of course, offers the means of positive diagnosis

in skillful hands, though the fragile wall of a diseased bowel will attach to the procedure a certain element of gravity.

The course of ulcerative colitis may be short, the symptoms subsiding within three weeks with apparent recovery, though relapse is, according to all, liable, and according to some, sure to occur.

The prognosis of the condition recognized by Tuttle, Phillips and Mummery is grave. White, quoted by Tuttle⁸ states that it is doubtful in any case that recovers whether, after all, the diagnosis was correct.

In its treatment, care must be taken to avoid irritating the colon by coarse particles of food. The diet must be practically confined to liquids. Medicines by mouth have little influence on the disease, although Phillips praises mercurous chloride highly.

All recommend colonic irrigation, the number of agents advocated being very extensive. In the matter of colonic irrigation, it seems to be the consensus of opinion today, that the force of gravity, induced by the patient's posture, must be depended upon in order to reach this organ with direct applications, the long colon tube rarely, if ever, passing beyond the rectum.

In severe cases, operation is performed for the purpose of:

1. Giving rest to the colon by colostomy or ileo-sigmoidoscopy.

2. Establishing an opening in the cecum through which the colon can be washed out. The use of the vermiform appendix for this purpose has certain well known advantages: First; it is a simpler, shorter and less serious operation. Second; there is not the troublesome ulceration about the orifice that there is following a colostomy. Third; in appendicostomy the patient is subjected to no inconvenience—he is not compelled to pass the rest of his days between the devil of a troublesome apparatus on the one hand and the deep sea of social ostracism on the other.

The origin of this operation is assigned by some to Weir, of New York and by others to W. G. Spencer, of England.

August 22d last, I was called to see Miss J., a domestic, for acute abdominal pain with bloody diarrhea.

The following family history was later elicited: The father has been subject to epilepsy all his life. He has four sisters living, concerning whom nothing

definite is obtainable. His mother, the paternal grandmother, was at one time temporarily insane. His father was permanently so from the period of middle life.

The patient's mother is afflicted with corneal scar tissue of unknown origin in both eyes and with chronic sinusitis. One maternal uncle died of pulmonary tuberculosis, one is insane. Three maternal uncles are living and well so far as known. The mother's parents were first cousins and both were insane for a number of years before their death.

One brother of the patient is subject to epilepsy, another has had suppurating otitis media since infancy and is frail and puny. A younger sister has developed well marked symptoms of Huntingdon's chorea. Up to this time the patient has been the most fortunate member of this unfortunate family. As an infant she was well developed, robust and apparently normal in every way.

When ten months old she fell from a high chair striking her head on the floor. The fall was followed by convulsions. The next day they were repeated and for the next two years they appeared almost daily and sometimes several times a day. At that time she received medical attention for the first time. The diagnosis of epilepsy was made and under treatment the attacks became milder and less frequent until her tenth year when they became more violent and appeared oftener than ever before.

After her eleventh year they gradually subsided in violence and frequency until her fourteenth year, during which, she had but one attack, the last she has sustained up to the present time. These attacks were always preceded by an aura and since their cessation whenever she is subjected to any unusual heat she feels the beginning of this ura which formerly was always followed by a convulsion. The convulsions were symmetrical and not confined to either extremity or to either side of the body.

All her life she has been subject to headaches, usually worse in the morning and, during the period when she was subject to them, always intense following a convulsion. Since her fourteenth year they have been of almost daily occurrence. For the past two years she has been aware of the presence of a post-nasal catarrh, for which, in April last, she consulted a specialist who diagnosed chronic sinusitis. After a few local treatments there was an improvement in both the discharge and the headaches.

June 15th last, while canning fruit in the afternoon, she became overheated, felt weak and dizzy and was obliged to sit down for a time. At five o'clock she lay down and did not get up until the next morning. Following this heat stroke the patient suffered from irritability, insomnia, weakness and increased headaches, which gradually became more pronounced until July 11, when she was obliged to go home, and from that time until I saw her she was able to do little or no work. The patient has a naturally calm and placid demeanor; is said to be a strong, active and willing worker and shows none of the earmarks

of the self-indulgent neurotic. Irritability is foreign to her make-up.

August 19th she was attacked in the morning with a painless diarrhea. During the day she felt chilly and was nauseated. About four o'clock in the afternoon she began to have painful cramps and then, for the first time having an opportunity to inspect the stools, noticed the presence in them of blood. The passages increased in painfulness and frequency during the night. Receiving medical attention the next day she experienced relief and the day following, August 21, felt about as well as usual. August 22 about noon, the cramps and diarrhea returned. The first doctor being unable to care for the case, I was called in.

I found the patient in bed, in apparent distress and very restless. There had been a slight chill and she had tried to vomit. The abdominal pain was high up, over the epigastric region. At no time had there been, nor was there at any time during the course of the attack, any tenesmus or rectal uneasiness. After each passage there was complete relief for a time. Asked to locate her pain, she said she ached all over. Questioned closely, the pain was mostly located in head and epigastrium. The face was flushed, pupils equal and normal, tongue slightly coated with clear margins, throat slightly hyperemic, tonsils somewhat enlarged. No anterior or posterior cervical glandular enlargement; sub-lingual glands slightly so. Lungs, negative. Heart normal in size and position on percussion. Tones normal except an accentuation of the pulmonary second sound over the aortic. Abdomen soft, slightly tympanitic and tender on moderate palpation over the left hypochondrium. Over the region of the splenic flexure of the colon there seemed to be an indistinct mass, to outline which, no abdominal massage was undertaken.

The reflexes were not tested. The patient was somewhat delirious. Temperature, 104.5; pulse, 112; respiration, 50.

Gross inspection of the stools showed the presence of mucus in small amounts to which were attached clots of rather bright blood not intimately mixed with the rest of the stool. The amount of blood seen up to this time had not been great. There was no history of a tarry stool.

Calomel in broken doses and sponge baths were ordered. Following the bath the patient became quieter and finally fell asleep. At six o'clock the next morning the temperature had fallen to 95, a drop of nine and one-half degrees within twelve hours. At 11 a. m. it was 97.8; pulse, 60; respiration, 28. A blood count showed 16,600 whites, 83 per cent polymorphonuclears, the remainder being about equally divided between large and small mononuclears. No eosinophiles or mast cells seen. No red count made. Hemoglobin apparently normal.

Urinalysis showed nothing abnormal. Examination of a 24-hour collection showed an excretion of urinary solids during the day time greatly in excess of the amount excreted during the night, the quantity of urine being naturally diminished.

Cabot, of Boston, attaches great importance in the diagnosis of nephritis to the preponderance of the nocturnal secretion of solids over the diurnal.

At this time an ambulatory type of typhoid with relapse and hemorrhage was thought of but which the succeeding history and a negative Widal served to eliminate. Dysentery was considered but the abrupt onset together with entire absence of tenesmus seemed to point to some other more probable condition.

The family had moved to their then place of abode August 5.

The water of the well at this house had a bad smell and a worse taste. It was not the odor of decomposition. The taste was bitter. White clothes washed in it were turned yellow. At times, water was brought from a neighbor's well but the water from this well was in more or less constant use by all the members of the family. A few days after I first saw the patient this was partially cleaned out. Following this, its water was used exclusively.

August 28, nine days after the patient's first attack, the mother was taken with severe abdominal cramps and bloody diarrhea. The day following, a younger sister was similarly affected, both having a feeling of chilliness and some nausea. Three other members of the family were quickly attacked with painful cramps and frequent stools but in which no blood was seen. All use of the water of this well was at once stopped and all promptly recovered.

In the meantime, the patient's temperature gradually rose to normal. At no time since has any fever to speak of been observed. She was given colonic irrigations of potassium permanganate, 1 to 3,000. The diarrhea was quickly checked, the blood became less and less, and by the time she was able to sit up, two weeks after the onset of the attack, it had entirely disappeared.

The first colonic irrigation, August 25, brought away a number of round worms. They continued to appear daily. After a few days, santonin and calomel were given on the empty stomach, and this treatment was repeated at weekly intervals. After each treatment and usually between treatments, round worms were seen until Sept. 14, when the last of them were observed. It is impossible to estimate the number of these parasites that were passed altogether. A pint and a half would be a conservative guess. On Sept. 25 and 26, she had another attack of diarrhea. The pain was less than before. No chill or nausea was experienced. The stool was not examined. The patient moved to a distance about Sept. 5 and close observation of her has not been possible since that time.

At present, the insomnia and irritability are getting less. The post-nasal catarrh and the headaches are worse than during her acute illness. Her strength is very slowly returning but she is not as strong as she was before the heat stroke in June. There is still pain over the left hypochondrium. It is not severe, but she knows it is there. There is tenderness

on moderate palpation over the entire region, being most marked over a small area about two inches to the left and a little below the level of the umbilicus. At present the white-blood counts is 15,600. Afternoon temperature, 99; pulse, 88; respiration, 24.

A Von Pirquet gave a negative, and a Calmette a positive reaction. Microscopic examination of the stool showed nothing abnormal.

The pulmonic second is still accentuated over the aorta but to a less degree than before.

In this case there undoubtedly was, perhaps there still is, a colitis. Is it to be identified with any of the forms of colitis whose causative agent is known or classified with those cases recognized by Phillips, Mummery, White and others as constituting a clinical entity with a serious prognosis?

Of the forms enumerated with known etiology, there may be briefly considered: catarrhal dysentery against which are the character of the onset, the entire absence of rectal irritation and tenesmus and the course of the disease. In tuberculosis one would not look for such fulgurant symptoms with subsequent general constitutional improvement.

Syphilis, contracted through the usual channel, is quite improbable. The environment, though unfortunate to a degree, is morally clean. Extra-venereal or hereditary lues would almost surely have revealed itself elsewhere. Actinomycosis cannot be absolutely ruled out nor can a minute embolus of an arteriole of the bowel wall.

Looking at the case in the light of such a disastrous family history; recalling the insult to the central nervous system from heat stroke and remembering the susceptibility of the patient's nervous system to unusual temperature, may we not consider here the possibility of the presence of a tropho-neurosis? One that may have selected the mucous membrane of the bowel as the point of weakest resistance; that the function of biosmosis being interfered with, a vicious circle was established permitting the entrance through the damaged wall of the intestine of toxic material that served to still further incapacitate the regulator of its vital functions.

One might conceive that this patient, with a bowel that offered a defective barrier to the passage of toxins, in the presence of the poisonous matter from that well was overwhelmed by an attack that, in the other members of the

family, assumed an importance comparatively trivial.

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ABORTION, CAUSE, PROPHYLAXIS AND TREATMENT.

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Abortion means the previable expulsion of the human ovum.

The word "Abortion" has been subjected to different subdivisions, such as abortion, miscarriages, etc. The latter signifying later instances of the same abnormality. Hirst says that miscarriage is chiefly distinguished from abortion by the formation of the placenta, and from premature labor by the adhesion of the placenta to the uterine wall, its retention, and consequent serious hemorrhage, or infection. Premature labor signifies the birth of a fetus that is viable.

The term abortion has both a social and a pathological significance which complicates the situation. The public, both from ignorance and carelessness, neither reports nor treats abortions until after they have brought such evils in their train as may only too frequently be expected to follow neglect. This neglect often brings future interrupted pregnancies, and resulting uterine diseases. For this reason definite information on the subject outside of hospitals is both unreliable and hard to obtain.

A report from the Lying-In Hospital of New York City, published in the *Journal A. M. A.* last year in which careful observations in 3,500 cases of abortion shows that more than twenty-five per cent of these women having abortions or premature labors, acknowledged having previously aborted from one to fifteen times respectively without having a single living child.

Authorities account that a record with careful questioning of the mothers is the only means of

getting anything like accurate knowledge of the proportion of abortions to the total number of births, and even this must be discounted by un-intelligent and false testimony.

Necessarily statistics published by hospitals and physicians, vary greatly.

One writer, Taussig, estimates that one abortion occurs to every two births. This would include criminal abortions of which there is a very great number in every section of the country. It has been estimated by those who have investigated the subject carefully that one hundred thousand artificial abortions occur in New York City every year; and that other cities have similar records in proportion to their population.

Causes. Outside of criminal abortions there are numerous causes. Immediate excitants to expulsion of fetus or the ovum may be mechanical. Fever, toxic and nerve irritation as well as fetal death. Fetal death may be the result of a number of reasons, such as congenital, nutritive, infections or high fever, but its occurrence acts as a mechanical irritation from within, producing expulsive contractions, since the dead fetus is, as it were, a foreign body in the uterus.

Uterine diseases are frequent causes of abortion. These are naturally to be found more often among women who have born children than women who have not.

Degenerative changes in the membranes, leading to hemorrhage are responsible for many cases of early abortion; also local conditions of the uterus, such as lack of development and the various forms of endometritis.

Subinvolution displacements, especially retroflexion and prolapse are common causes, also deep lacerations of the cervix from previous labors.

Certain general diseases, such as albuminuria anemia, cardiac affection, and especially syphilis, are frequent causes of abortion.

It is well known that the acute infectious diseases, such as pneumonia, typhoid fever and smallpox, are often followed by abortion, usually as a result of the poisons circulating in the maternal blood, together with a high fever.

Exceptionally, injuries such as a fall or blow may cause uterine hemorrhage, due to separation of the placenta, and are speedily followed by abor-

tion. In some instances shock, or fright may produce the same results.

Attempts to bring about criminal or self-induced abortion, usually by using some instrument must always be considered a probable cause, even if denial of the fact is made by the patient.

In some women with an irritable uterus very slight causes will bring on uterine contractions and expulsion of the fetus, while in others, all sorts of injuries, excitement and operations are gone through without disturbance of pregnancy.

In abortion, the ovum varies with the changes of pregnancy, which may be divided into three groups of unequal time limit but covering the first two-thirds of the pregnant period.

The first period covers the first six weeks.

The second group of six weeks, is that of placental formation.

A study of the marked increase of abortions within this latter period shows that they might be due to the nutritive changes of the fetus at this time, and to circulatory disturbances in the uterus from the developing placenta and, finally, the fact that this is the time when pressure symptoms from mal-position of the uterus would be felt. During this second period, that of the most frequent abortions, there is a firmer adherence of the placenta to the uterine wall, and with it a greater tendency to retention of portions of the placenta after the ovum is expelled. When the membranes have been ruptured by instruments to induce abortion the entire placenta is often left adherent; the other membranes may come away in shred-like discharges after the abortion.

The record of abortions for the first two months, even leaving out of account cases of criminal abortion, which certain authorities place at as high a rate as fifty per cent of all that occur, are harder to keep track of than those happening later; and it is not surprising to find the number of abortions in the first six weeks the smallest of the three periods under consideration.

Prophylaxis. Prophylactic treatment comprises the correction of any ascertainable cause of abortion.

If the patient has aborted a number of times previously, as in habitual abortion, or if there exists another reason for suspecting premature

abortion, a definite line of treatment should be given suitable to the conditions present, such as uncontrollable vomiting or coughing. Active exercise, lifting heavy weights, reaching for objects far above the head; horseback riding, and anything that has a tendency to produce pelvic congestion should be avoided. Rest in bed at the time corresponding to the normal menstrual period is beneficial.

Local conditons, such as metritis or endometritis, diseased tubes or ovaries, displacements, lacerations of the cervix, and inflammatory pelvic disease, should be treated before pregnancy.

If there is a history of syphilis in either parent, active antisyphilitic treatment should be given through the whole course of pregnancy.

When a woman is threatened with immediate abortion as evidenced by pain in the pelvic region and even a slight flow of blood, she should be put to bed, kept absolutely quiet, and if examination shows that the cervix is not dilated, full doses of morphin should be given.

By these means many threatened abortions may be checked and the pregnancy continued normally.

Treatment. The two symptoms which are always present in an abortion are *pain* and *hemorrhage*.

It is very necessary to obtain a more complete history of the case, since other pelvic conditons can not always be told from abortions without careful examination.

A thorough vaginal and abdominal examination is necessary. After the third or fourth month, an enlargement and softening of the uterus, with a partially dilated cervix, may be found on vaginal examination.

If the symptoms have persisted for some time, the cervical canal may be open enough to allow the finger to enter, and in such cases there can be little room for doubt, and a bulging mass of membranes may usually be felt.

When it is clear that an abortion is inevitable, the medical attendant must decide upon the merits of the case whether treatment shall be expectant or active.

If there is no temperature, little pain or hemorrhage, and the discharge is not foul, it is

usually safe to wait a reasonable time for nature's own efforts to complete the delivery; but days often elapse before the greater part of the contents of the uterus is expelled, and it may be weeks before the patient is rid of the discharge and membranes which usually remain, with the adhered placenta. If the case terminates in a reasonable time without complications, and the attendant is satisfied that the contents of the uterus are entirely removed, the treatment afterwards is simple; but such cases are exceptional.

If hemorrhage is serious, it must be controlled, and it is usually checked by a vaginal tampon of sterile gauze, which may be removed in twelve to twenty-four hours.

If there is oozing of blood when the cervix is not dilating properly, it may be well to pack the vagina for a few hours. This is often sufficient to cause expulsion of the fetus, but the uterus may not be empty. In the early months the large mass of membrane is almost all retained; later the placenta is more or less adherent.

Whether to treat the case expectantly until serious symptoms develop, or to remove at once the substances in the uterus which may give rise to future trouble, is a question that the physician must face.

I believe it is not a good plan to wait long before making an examination of the uterus, especially if the temperature rises, and the local discharge becomes foul, indication that septic infection is taking place.

The operation should be done under as strict aseptic conditions as possible and the contents of the uterus evacuated by placental forceps, the finger, or dull curette.

This operation has been done many times in private houses and no bad results follow, but a hospital would be a better place, and more satisfactory results obtained.

If the contents of the uterus are foul, and septicemia seems to be present, the operation should be followed by an intra-uterine douche, but just as good results occur where the uterus has been well mopped out with a solution of iodine and glycerine.

General treatment afterward should be general tonics, nourishing food, fresh air, and absolute rest.

The bowels should be kept open, and an effort made to bring the resistive powers of the patient up to the highest point to assist in getting rid of the toxins from the body. Good doses of quinine would be indicated. I have treated some cases with good results after the following method:

As soon as abortion is seen to be inevitable, pack the uterus with sterile gauze. This should be packed tightly as possible, without using force, and vagina packed the same way, and the patient kept in bed for about twenty-four hours.

At the end of that time, remove packing and curette. This will bring out any particles of tissue, liable, if not removed, to adhere to the walls of the uterus which might produce inflammatory conditions and further uterine troubles, such as endometritis and leucorrhea, or furnish a starting point for disease producing organisms.

Afterward mop out the uterus with iodine solution. Some authors advise an iodoform gauze drain reaching to the fundus.

Dr. Young, of the Boston City Hospital, made a report on 2,000 cases of abortion treated there last year. They claim that very little advantage is attached to any particular method of emptying the uterus, provided strict asepsis is observed.

Of these 2,000 cases, 200 were classified as spontaneously complete, and 1,300 cases as incomplete; and of the latter 100 were considered to be infected at an early stage in the process. They found that the percentage of cases in which spontaneous completion occurs, rises from ten in the first two months, to twenty-six in the sixth month, showing that retention of the part of the ovum is much more likely to occur in earlier pregnancy.

This is contrary to the usual statement that complete abortion is more likely to occur before the placenta has formed. On the contrary, they find that the expulsion of a complete early ovum is a rarity.

In the earlier months, when interference was needed, the uterus was cleared out by finger, forceps, and light curette, but in the later months they advised vaginal packing for 24 hours, in order to effect dilatation of the rigid cervix, holding that the rapid dilatation is not desirable on account of the lacerations which such process necessitates.

Of the 1,300 cases admitted without fever, only three died.

Of the 500 infected and fever cases, six died.

One of the most important points brought out in these reports is the high percentage of infection and mortality which occurs in self-induced and criminal abortions. The mortality in self-induced abortion was 5.5 per cent, and in criminal abortion it was more than 10 per cent, due no doubt to incompetence in performing the operation and unclean instruments and unclean methods.

It is a well known fact to the profession that one of the greatest dangers in connection with abortion is from sepsis, which leads to septicemia, peritonitis, and other serious conditions. In looking up the recent literature on this subject, one notices a great difference of opinion concerning the treatment of puerperal infection, whether from abortion or full term labor.

This difference is very marked even among men high in the profession, as was shown in the discussion of a paper by Dr. McPherson of the New York Lying-In Hospital, and read at the meeting of the A. M. A. last year.

He reported 3,500 cases of abortion in which the uterus was curetted in every case.

His practice was severely criticized by a number of men present. Some of them were willing to allow this privilege to specialists in their departments, but they condemned any such practice in the hands of general practitioners, stating that patients under such circumstances stood a better chance of getting well if they were let severely alone, unless they were in the hands of a specialist.

This statement seems to me to take in too much territory.

Now every doctor present no doubt has seen cases of abortion with retained membranes where the patient had high fever, has seen the fever drop very rapidly after the uterus had been thoroughly cleaned of its foul contents, and the patient make rapid improvement afterward, even though the operation was done by a country doctor.

To be sure if a man is not capable of doing the work properly, he should not undertake it.

Another paper read before the A. M. A. by Dr.

Watkins of Chicago on "Puerperal Infections," set forth the following conclusions.

1. Puerperal infection is a systemic infection, and treatment should be chiefly general.

2. The only general treatment of established value consists of remedies which strengthen the body resistance, hastening the development of general immunizing bodies.

3. Retained products of conception should be left to escape spontaneously.

4. Pelvic inflammatory exudates usually will disappear entirely by absorption. Exceptional cases, usually secondary colon bacillus infections, require incision and drainage.

5. Cases of suppurative peritonitis should be operated on early.

6. Vigorous operative treatment that is often used is more dangerous than the disease.

He believes that vaccines and serums are still in the experimental stage, and not reliable.

To increase the body resistance he depends on food, liquids, rest, sleep, and general hygiene, and when possible the patient is kept out-of-doors.

He advises not to explore or empty the uterus except for hemorrhage, taking the stand that there is no evidence to show that infected tissue increases virulence or growth of dangerous bacteria.

Curettage with finger or instrument produces raw surfaces, scattering the infections, which may dislodge septic material and produce embolic infections and pelvic inflammatory exudates.

Dr. DeLee of Chicago and Dr. Baly of Philadelphia, endorsed practically all of Dr. Watkins' views, while some others held different views.

At a meeting of the Chicago Medical Society, the sentiment expressed, when this subject was under discussion was, that infected placental remains should be removed.

In reviewing the literature on puerperal infection I give views of the following person of note.

1. Fellner believes in non-interference except when retained tissues cause severe intoxication.

2. Findley is of the opinion that in violent streptococcus infection it is better to encourage spontaneous expulsion by ergot; failing in this the uterus must be emptied by mechanical means, the finger preferred.

3. Mayer would remove placenta with the

least possible injury to the uterus, and at the earliest possible time.

4. Merman's rule is never examine any case post partum irrespective of fever, except when hemorrhage occurs, or when symptoms or external examinations show a probability of vaginal exudate.

5. Montgomery believes generally in non-interference, but advocates operation in all cases in which occur localized collections of pus.

6. Zangmeister has made extensive bacteriologic investigations on this subject, and concludes that streptococci are responsible for eighty-six per cent of post-abortive and puerperal infections.

His method is to leave retained tissues for nature to remove, but if abscesses or exudates form, he incises, if pointing occurs. Many other opinions might be quoted, but these are sufficient to show the wide difference in the views that are held concerning the management of these conditions. There is no absolutely established treatment upon which all agree. There can be no doubt that the infection finds its way into the body through the genital tract, and that very soon after the disease becomes essentially systemic; but as puerperal infection is usually a combat between the invading bacteria and the body resistance, it would seem logical to use such remedies as would injure the bacteria, and also strengthen the resistive forces of the body, but unfortunately we have no known remedies that directly limit the growth or destroy the bacteria of puerperal sepsis, unless it might be done by the use of the vaccines and serums.

Here, then, is where the greatest difference of opinion in treatment of puerperal infection naturally arises. Shall local means be adopted? Shall surgical means be attempted?

The various opinions as regards the indications for emptying the uterus may be classified about as follows. Some authorities hold that the uterus should never be emptied, except for hemorrhage. Others, that it should always be emptied, except when streptococci or pelvic inflammatory exudates are present; and others, that it should always be emptied when products of conception are known to be present, irrespective of bacterial findings.

It seems that the latter view is the most reasonable one of the present day, especially in view of

the good results obtained at the New York Lying-In Hospital, where this plan was adopted in the treatment of 3,500 cases of abortion, in which good results were obtained in ninety-seven per cent of all cases treated.

On account of the different opinions held on this subject, I would ask for opinions on the following points. 1. Should the puerperal uterus be emptied in presence of infection, and if so when? What should be done in the following cases? Case 1. A primipara with septic abortion, at three months, fever for two days, the hemorrhage slight, membranes intact. Case 2. A primipara with septic abortion, at three months, fever two days, hemorrhage slight, fetus expelled, placenta retained. Case 3. A primipara, fourth day after full term delivery, positive evidences of uterine infection, no hemorrhage, retention of remnants of membranes suspected.

NEWER METHODS OF DIAGNOSIS AND TREATMENT OF GASTRO-INTESTINAL DISEASES—LARGE AND SMALL INTESTINES.*

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In briefly considering the diagnosis and treatment of some diseases of the large and small intestine, we must remember that this canal is but a part of a complicated being; that while all these beings were cast after the same model the individual, as such, must always be kept in mind.

Briefly considering the embryology of the intestinal canal, we find that the rather straight tube grows too long and folds and coils result, the large intestine rotating and bending as its environment demands; hence the splenic and hepatic flexures and later, with continued growth, the ascending colon. The peritoneal surfaces fuse or fail to do so as suitable conditions develop, failing to fuse completely in about 20 per cent of all cases.

The diameter of the average cecum is three inches, and about 95 ounces of fluid can be placed in the colon of the living man. The cecum is found in the pelvis of 10 per cent of all children (Smith). The function of the small intestine is

to further the digestion started by the mouth and stomach, but here in an alkiline medium, to absorb all foods digested to the proper state, to carry waste and some incompletely digested food to the colon, to excrete certain chemical substances as an excretory organ.

The cecum receives this mass in a semi-fluid state, the ileocecal valve normally preventing the contents from re-entering the ileum, but permitting more material to pass into the cecum as the inter-cecal pressure decreases. The cecum always contains gas and is never found empty. Thus there is always culture medium for the numerous bacteria which carry on the final steps of digestion. The water here is reduced and fermentation and putrefaction take place, largely in the cecum and ascending colon.

According to Cannon, the movements of the colon are peristalsis or onward and anti-peristalsis or anastasis—a backward wave. This movement has never been indisputably demonstrated in man and is denied by some authorities. However, there is a definite point, generally about the middle of the transverse colon, from which food passes or is churned backwards towards the cecum, but when once past this ring, it proceeds distally (Roith) to the splenic flexure, the descending and pelvic colon. The colon is only found in air-breathing animals, and is larger and better developed in herbivorous than in carnivorous animals. The proximal half of the colon is not emptied by stimulation of the sacro-visceral nerves. Defecation should empty the colon distally from the splenic flexure (Cannon).

Intestinal stasis: The all-absorbing topic for the last few years has been intestinal stasis. In its simplest definition intestinal stasis means constipation. (Bassler.)¹ Or again, stasis is a retardation of transit with absorption of some toxic products producing a toxemia of variable degree.

Etiologically, stasis may result from many causes, as degenerative changes of the entire body; faulty teeth; faulty development; chronic constipation, resulting in atony and dilatation; external influences, as lax abdominal walls, with decreased intra-abdominal pressure; ptosis of part or entire colon, resulting in kinks and sharp

*Read April 7, 1914, at a meeting of the Englewood Branch, C. M. S.

¹Am. J. of Gastro-Enterology, July, 1913.

angles; adhesions, either embryonic or acquired; tumors, etc.

The symptoms, according to Lane, are:

1. Loss of fat.
2. Wasting of voluntary and involuntary muscles.
3. Degenerative changes of skin, associated with alterations in its texture and color; the development of pigmentations, especially at certain locations and a more or less offensive character of the perspiration.
4. Temperature in uncomplicated cases is often subnormal, particularly so in extreme cases. It may possibly be a stage of Raynaud's disease; the external skin may be blueish in color.
5. Mental attitude one of apathy, stupidity, or misery. Sleep poorly and not rested after sleep, neuralgic symptoms or tick; headache a very frequent feature; temper irritable.
6. Rheumatoid aches in muscles, joints and skin.
7. Thyroid wastes.
8. Blood pressure raised or depressed.
9. Degenerative changes in breasts, especially in upper and outer zones.
10. Organs prolapse and alter shape.
11. Breathless on exertion similar to an asthmatic condition, also due to distention of stomach and intestine.
12. Degenerative changes in the heart; atheromatous degeneration of large vessels.
13. Kidneys likely to show effect of added strain; chronic Bright's disease.
14. Lowered general resistance to all infections and diseases.

Perhaps Lane goes to the extreme, but his results are remarkable. The mild case may show but few of these symptoms and vary with the amount of absorption from time to time.

Having symptoms somewhat as above, with an insufficient pathology in other parts of the body to definitely account for the condition, it may be assumed that a stasis exists and further efforts must be made to make a definite diagnosis. The physical examination of the abdomen as to the presence of tenderness, undue distention, lumps or masses, visible or palpable peristalsis, condition of abdominal wall, position of kidneys, the rectal tone of the sphincters, empty or full rectum, changes when examination is made in a standing position—all these conditions are first to be determined, with also a general routine examination of the stools, especially as to consistency, occult blood and undigested particles. The urine should be examined carefully for indican. Although indican is not pathognomonic of stasis, it is undoubtedly indicative of intestinal putrefaction when found in excess. Carmine may be given in

5-grain dose to roughly determine the length of time for food to pass through the alimentary canal. This drug is not absorbed and is considered harmless. It will mark off the stool very nicely. After this routine examination and repeated careful examinations from a clinical standpoint, the X-ray is of great value. Bismuth meals (or barium) and bismuth enemata are given. Both plate and fluoroscopic examinations, with perhaps palpation during observation, give the clinician data to compare with his clinical findings. The interpretation of X-ray plates should be left to the experienced radiographer and his findings should dovetail with the clinical symptoms.

The diagnosis made, the treatment is first medical, unless definite evidence of fixed mechanical obstruction exists. Dietetic treatment consists mainly of a fattening diet, furnishing large bulk of stimulating character, and is practically the same as in the treatment of severe constipation. The mechanical treatment consists of exercise to develop the abdominal muscles and the general system (Martin), massage, and the wearing of the proper abdominal supports below the umbilicus. Drugs are only recommended as an initial cathartic. Lane uses liquid paraffine before each meal.

These measures must be tried faithfully over an extended period to produce the results desired. Should they be a failure, or should there be symptoms pointing to localized conditions, then surgery in the form of an exploratory laparotomy is indicated; midline or rectus incisions seem to be the favorites. The day of the small incision is over. The entire abdominal contents are carefully examined, and each treated as then deemed best. There is often much supposed pathology found in an abdomen which never causes symptoms. The finest judgment is necessary. Much useless tampering has been done with the pelvic organs, and much worse than useless surgery is likely to be done to correct stasis.

Jackson's membrane, according to Flint "is a fine, delicate, cobweb-like veil, covered with peritoneum, the membrane extending from the free part of the large intestine upwards toward the hepatic flexure, joining with the parietal peritoneum. Its blood-vessels run parallel without anastomosing, and originate from the vessels of

the parietal peritoneum and communicate with the vessels of the colon. The colon is, as a rule, freely movable under this membrane, which is attached to the ventral and lateral sides of the colon. Histologically, this is not an inflammatory membrane (Hall). Some excellent men do not interfere with this membrane unless there is definite evidence of constriction or tying down of the colon; others cut the membrane and turn in the cut edges.

Flint's embryological studies apparently prove that this membrane is the result of embryological contact and adhesion with the parietal peritoneum as the colon turns downward, and later with the development of the ascending colon the peritoneal adhesions are drawn out into a fine membrane.

Cecum mobile is regarded by many as a frequent cause of stasis, while others think it but rarely causes symptoms. Undoubtedly many ceca are in the pelvis all the time, or at variable intervals, without interfering with the normal function. That it perhaps tends towards ptosis is shown by Coffey, who demonstrated that normally the colon rests on a muscle shelf—iliac muscle—furnishing an inclined plane of 51 degrees, which absorbs 30 per cent of the weight. This with the support of the intra-abdominal pressure greatly reduces the strain on the so-called ligaments. However, a long free cecum would thus seem to hang over this muscular shelf when the body is in the erect position and to add its weight to the strain on the colic ligaments.

In 20 per cent of people the ascending and descending colon have not completely fused with the parietal peritoneum. Therefore in these cases a mesentery is found except at the flexures. This then leaves a direct drop from the kidney, making the rounded angle of the hepatic flexure acute, which continued strain on the renal ligaments is likely to produce a movable kidney. Coffey says, "I have so far not found a single unilateral movable right kidney where a proper rotation and peritoneal fusion has taken place." Twenty per cent of the women coming to the Mayo clinic have a movable right kidney, and most of them exhibit no symptoms referable to this organ, consequently stasis due to faulty fusion and rotation must take place in a small percentage of this one-fifth of the human race. Again Coffey says that a floating left kidney is

never seen without a floating right kidney, and he sums up the steps in general ptosis as follows:

1. Deficient peritoneal fusion.
2. Sagging of certain portions of the alimentary tract with consequent kinking at the fixed points with a resulting intestinal stasis.
3. Absorption of fat and letting down of all organs as a result of stasis.
4. Consequent relief of intestinal stasis.

As this process goes on the lower abdomen enlarges and the upper abdomen gradually shrinks. Thus while the cavity of the normal abdomen is pear shaped with the stem towards the pelvis, the opposite holds in late ptosis.

Given a right-sided ptosis with a moderately movable right kidney, painful cecum and appendix not relieved by medical measures, the proper treatment is removal of the appendix and fixing the ascending colon through a right-rectus incision, plus fattening. If the kidney is markedly movable he advises removal of the appendix through an anterior incision and the stitching up of the ascending colon and the kidney through a posterior incision. Midline ptosis this author treats by shortening the ligaments of the liver and stomach and suturing the omentum to the abdominal wall and expanding the upper abdomen.

Lane's kink of the ileum is the binding down of the under surface of the mesentery of the last few inches of the ileum to the parietal peritoneum. These adhesions or bands later contract and bind down the gut. This condition is generally corrected by cutting the binding bands and stitching up the elongated mesentery. Mayo says the differential diagnosis of Lane's kink from chronic appendicitis may be impossible.

In the treatment of severe cases of stasis, Lane has been advocating either total excision of the colon, or short circuiting by means of an ileocolostomy, and reports marvelous results. The colon is considered of little value by him. This method practically makes a blind sac of the proximal portion of the colon, and in some cases has caused recurrence of symptoms.

Other kinks which may cause severe symptoms requiring surgical interference may be; misplaced appendix, especially in cecum mobile, where the tip of the appendix may become adherent and thus act as a ligament; a duodeno-jejunal kink which is usually secondary to ileal stasis; kinking

of the sigmoid loop, that the two ends may be brought together by bands so that the loop may be converted into a short, straight tube. This is often known as Lane's second kink. This condition is corrected by anastomosis with the pelvic colon.

Constipation: Constipation may be due to any of a multitude of causes, either local in the colon itself, or secondary to some other conditions. Cannon says:

Inasmuch as defecation is a reflex initiated by the presence of feces in the rectum, it is a matter of practical importance to note that the rectal mucosa soon becomes adapted to the presence of a fecal accumulation, and then fails either to induce the desire to defecate, or to initiate reflex contraction of the colon. If the call to defecation is not promptly obeyed, it ceases to be given, and the feces stagnate in the rectum. The stagnation of the feces in the rectum is only one of the ways in which passage of material through the alimentary canal may be delayed. In other forms of constipation there may be delay somewhere in the long course the food takes because of an inefficient motility, as in states of general atony, in depressive emotions and reflex inhibition on intestinal movements. In still other cases the delay may be due to obstruction of various sorts.

Hertz divides constipation into two classes: First, passage of material through the intestines is delayed. When material reaches the pelvis defecation is normal; second, no delay in arrival in the pelvic colon but final expulsion is not adequately performed.

The treatment of the first type is diet, massage, and to some extent laxatives. The second should be corrected by attention to hygiene of the bowels and re-education of the defecation reflex by administration of gradual enemas. Schwartz classifies constipation as hypokinetic, in which the "globus pelvicus" is not formed even after forty-eight hours. The fecal material forms a solid column of unusual length. The colon itself shows abnormal lengthening and a tendency to loop formation. Hypokinetic obstipation consists in a diminution of the motor function of the distal parts of the colon. However, there is no widening of the lumen of the colon, consequently no atony. Second, dyskinetic obstipation is defined as a pathological accumulation of those movements which normally hinder the progress of intestinal contents towards the anus. (1) Segmentation movements of the haustra; (2) retrograde movements (anti-peristalsis). Material in

the transverse colon is divided into many small masses.

Medical Treatment: Drugs as such should be used only to get a right start; for this the usual cascara sagrada in decreasing frequent doses is still the favorite; also hepatic stimulants, as blue pill with euonymin, followed by natural aperients to stimulate the flow of bile; and belladonna for spastic conditions. Agar-agar is extremely useful in dehydrated conditions; liquid paraffin (liquid petroleum) is a special favorite with the English. Lane considers it the remedy in the medical treatment of stasis. Leslie shows its great value in private practice, its non-absorbability, its action as a lubricant, and its protection to the intestinal mucosa very much like normal mucus. For children Prichard recommends an emulsion of liquid paraffin (m. 20), benzoic acid (gr. 1-32), saccharin (gr. 1-32), ol. cinnamon (1-16) to the decoction of Irish moss (q. s. drachm 1). Of this from one to three drachms may be given three times a day. The formation of regular habits is of importance in all cases of constipation. Massage when given properly will stimulate a sluggish colon. The diet consists of coarse food stuffs, vegetables and fruit. The teeth should be kept in good condition and food thoroughly masticated.

Dysenteries: Amebic dysentery may now be considered to have a specific remedy in emetin. Ipecacuanha has been used for many years in the treatment of this disease. The indifferent results obtained are now known to have been due to the variable amount of the alkaloid emetin, described by Pelletier in 1817. According to Vedder, emetin possesses no specific bactericidal effect against bacillus dysenterica, but it is a powerful amoebicide. Rogers was the first to use this drug hypodermically. This drug is not as effective against cysts, but is still the best remedy known; however, surgical drainage of abscesses should be made whenever necessary. Relapses are not infrequent, but yield rapidly to treatment. Emetin hydrochloride is given hypodermatically in one-third to one grain doses daily for ten days and the stools carefully examined for the amoeba hystolitica.

Bacillary dysentery: In the treatment of bacillary dysentery, Rogers thinks that in chronic cases

saline irrigations do more harm than good. The dysentery vaccines should be used cautiously in severe cases on account of their toxicity. In acute cases the colon and lower ileum are involved, in the chronic the lower part of the colon. Here there may be extensive ulcers and thickened walls. There may be a constant loss of blood and a marked discharge of mucus. Of drugs large doses of bismuth by mouth, and irrigations of silver gelatose (albargin) in one to five hundred or one to a thousand, are most highly recommended.

Appendicitis: To this well-known subject some suggestions have been made to help in the diagnosis. The Bastedo sign has been confirmed by the work of Dreyer and Rost². This test consists of inflating the colon. An ordinary rectal tube may be inserted into the ampulla of the rectum. The patient is placed flat on his back. As the air is slowly pumped through the tube, the colon is seen to gradually distend. A person not suffering from appendicitis feels a diffuse discomfort in the lower part of the abdomen, but no pain unless an excessive quantity of air is introduced, in which case there is no more discomfort on one side than the other, and there is no tenderness. Patients with appendicitis, however, generally experience pain in the right iliac fossa, even if the pain has previously been in the epigastrium or umbilical region. Whenever pain is produced and in some cases in which pain is absent, well-marked tenderness is found in the neighborhood of McBurney's point. In some cases Hertz has found that the pain is referred to the epigastrium when pressure is exerted in the right iliac fossa after inflation, the epigastric pain being identical in character with that which formed the chief symptoms of which the patient complained. Hertz has only found the Bastedo sign positive in appendicitis, the appendix having always been found diseased at operation.

Rost³ suggests that this be charged to changes in the "appendix and its neighborhood." He found the sign positive in a case where the appendix had been removed, but an enlarged prolapsed colon was found in the pelvis. After this was corrected the sign was negative. He suggests that this test might be of use in differenti-

ating abdominal pain due to diseases of the kidney, tubes, or gall-bladder, from localized inflammation of the large intestine, provided the latter was not connected to those organs by adhesions. This test is somewhat similar to Rovsing's sign, in which pain is felt in the appendiceal region by exerting pressure over the descending colon. This may be negative, as Hertz suggests, if there is not much air in the large bowel. Bassler⁴ insists that no diagnosis of chronic appendicitis be made where so-called appendicular dyspepsia may exist, unless a tenderness in the appendix region is found. He suggests percussing for the cecal borders, the lateral and lower borders often being easily determined, then pinching the appendix as follows: Determine the position of the right edge of the right rectus muscle in the umbilical spine line and place the thumb on this point with the tip of thumb pointing to the ensiform, then press slowly backwards into the abdomen. When the thumb has been sunk about half way down to the back of the abdominal cavity, the thumb is swung to the right of the patient at right angles to the downward pressure line. This pinches the appendix against the iliac muscle. If no tenderness is found, move the thumb down about one-half inch and repeat as above.

Ewart⁵ claims much for dorsal percussion. He marks off the iliac crests and then compares the dullness of the two sides. This method is undoubtedly of value in deep-seated hidden abscesses.

Diverticulitis: Diverticula are found in every division of the digestive tube and decade of life, but especially in the middle and later years. The large intestine is most commonly involved and especially the descending colon. Sixty per cent. (McGrath) of cases are a source of infection with results sufficient to produce symptoms, and may be the basis of grave pathology. The advanced stages often degenerate into malignancy. Hausemann found four hundred diverticula in one case. In the small intestine they are generally found along the mesenteric border; in the large intestine more commonly in relation to the epiploicae, the sigmoid being the most frequently involved. They may vary in size from micro-

²Hertz: *Lancet* March 12, 1913.

³*Brit. Med. Jour.*, Dec. 28, 1912, p. 1741.

⁴*Am. J. M. Sc.*, CXLVI, No. 2, p. 204.

⁵*Brit. M. J.*, 1912, ii, 1741.

scopic to that of a hen's egg, the average size being that of a pea. They are round or ovoid with a long axis parallel to the circular muscle layer. The walls consist of mucosa, sub-mucosa and serosa. The opening into the intestine may be large or small. The contents are generally fecal. Diverticulæ are associated with the course of vessels through the intestinal canal, the circular muscle bundles separating to permit the entry of the vessels and thus weakening the intestinal wall. Clinically diverticulæ are often diagnosed as malignant, but early they show simple inflammatory conditions. Twenty-five per cent show malignancy at the time of operation. The symptoms are described as left-sided appendicitis; the pain may be general, then localizing in the left side, and may be cramp-like in character. A tumor mass may be felt in the left lower quadrant. The sigmoidoscope may be an aid if used cautiously. The X-ray may show small pockets or areas of inflammation from localized peritonitis or abscesses.

Griffin⁶ describes the diagnostic signs as follows: Tumor of the sigmoid; absence of definite symptoms of malignancy; general good health with tendency to obesity; long history of localized pain in the left lower quadrant; history of a mass which subsequently disappears; absence of persistent macroscopic blood in the stools; inflammatory vesicle fistula on cystoscopic examination; negative sigmoidoscopic examination as regards malignancy.

The treatment depends upon the age of the patient and the extent of the involvement. The excision of the involved gut is recommended in young patients, and in older patients if there is danger of rupture or if localized peritonitis exists; in the aged the treatment should be expectant if possible.

Ileus, of whatever etiological factor, is now demanding immediate operation. The higher the obstruction the more rapidly fatal. The universal plea is for early diagnosis, no cathartics and no morphin until the diagnosis is made. Stone, Birnham and Whipple have done some interesting work as to the cause of death in intestinal obstruction. They found that if the

contents of a closed loop of gut are injected into a well animal, that it is toxic to this animal; that the splanchnic vessels become dilated; that the blood pressure falls steadily; that there is a rapid fall of temperature, dilatation of the pupils, slow respiration, decreased clotting of the blood, and that the intestinal mucosa becomes markedly congested and a large amount of fluid is excreted. They compare the shock to that of anaphylaxis.

Diarrhea: Regarding diarrhea Cabot⁷ says: "The intestines, like the kidneys, in long-standing diseases may show clinical symptoms now and then, presenting suddenly under the guise of an acute disease." He furthermore states that one cannot identify clearly what part of the intestine is involved, especially if extensive areas are affected. Fresh blood is generally supposed to be from the lower bowel, but this may come from higher up if there is rapid movement of the contents. Tenesmus points to the rectum—the stool may contain only mucus—which Cabot considers not diagnostic, or blood and pus which show an ulcerating condition of the large bowel, which generally runs a chronic course. The stools may show an excess of fat, or starch. Proteid is considered less important. The proctoscope may show large or small ulcers, which may be treated locally.

Fatal cases are rarely chronic, most of them lasting less than four months. Chronicity does not mean intractability. The average time of ulcerative cases in Cabot's series was thirty-eight days after treatment was begun, and twelve days in the non-ulcerative cases. His treatment is: Absolute rest in bed; initial purge of castor oil and magnesium sulphate; twenty-four to thirty-six hours starvation; boiled milk and later a diet low in fats and carbohydrates; daily normal salt irrigations; he thinks that astringents help but little; however, a weak silver solution might be tried but should be discontinued if one injection does not relieve temporarily; opium, especially in acute cases, with bismuth in thirty to sixty grain doses, once to three times daily. In some cases sodium salicylate seems to give marked relief.

The so-called nervous diarrhea should be treated as to cause, as overstrain, excitement,

(Continued on Page 615.)

⁶Jour. A. M. A., LIX, p. 864.

⁷Jour. A. M. A., LXI, 1015.

ILLINOIS MEDICAL JOURNAL

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DECEMBER, 1914.

Editorials

MERRY CHRISTMAS.

This will be the last number of the ILLINOIS MEDICAL JOURNAL to appear before Christmas, and we take this opportunity to wish for every member of the Society the Season's Greetings.

To many it may seem that we should not be so merry nor celebrate the day with the usual enthusiasm, but to us it seems that we should be happier than ordinarily, because we are free from the horrible devastation of life and property which menaces Europe. We hope that every member may take at least one day, and more if possible, away from care and work, in which to enjoy the yuletide, and we wish that no clouds may mar the spirit of the season for any one.

For the new year which will soon follow, we wish the prosperity for every doctor which should come as a sequence to a good service rendered to mankind. "Peace on Earth, Good Will Toward Men."

FOOT AND MOUTH DISEASE.

During the last six weeks Illinois, as well as several other states, has been much disturbed by

a rather stubborn outbreak of foot and mouth disease in cattle. So far as we know, but few or no people have contracted it, and the disease now seems to be gradually dying out in the herds affected.

The economic loss has been large. The anxiety and worry incident to such an epidemic is of no small moment. Those individuals who own fine herds of either dairy or beef varieties of cattle have not known what day might see an outbreak on their farms, with a consequent loss of thousands of dollars.

The people in the cities, who have no opportunity of knowing just where their milk and butter are produced and under what conditions, have their anxieties, more particularly if there are sick children in the family.

It would seem that the government should have found this disease earlier and should have prevented such an extensive spread of the infection. One also wonders if all the drastic measures prescribed, or rather put into effect, have been essential. Some of the measures taken in some states remind one somewhat of the "shot-gun quarantine" of yellow fever. These extreme measures perhaps cannot be obviated until more is learned about the infectious agent.

Every effort should be made to ascertain the exact nature of the virus and its habits, and every means should be taken to prevent a further spread of the present epidemic or the outbreak of a new one. In the meanwhile it is well to remember that the virus is not killed by moderate heat, such as is ordinarily given to commercially pasteurized milk; that freezing does not destroy it; that it will live for several months, under favorable circumstances; that the virus is easily carried from one farm to another; that the infection may be carried in milk, butter or cheese; that the infection has been found in the horn and hoof of animals.

SYMPOSIUM ON TUBERCULOSIS.

The *Interstate Medical Journal* is to be congratulated upon putting out a superb symposium on tuberculosis to its readers. As is stated, this volume is a reprint of articles published in the *Interstate Medical Journal*.

The Editor in his preface says: "A review of what has been accomplished by medical science in

the year 1913, to diminish the ravages of tuberculosis, needs to be judicial—even frankly conservative in appreciation of heralded progress.” That there have been so many cures advertised, or, to say the least, the literature has been teeming with articles advancing some special mode of treatment, and yet so many failures recorded, the above quotation must obtain.

The papers of this symposium are written by about forty different authors, all men of high standing in their special fields, and their writings constitute the best we have for the work of the last two or three years. They study the tuberculosis question from many angles and have observed it under many conditions, and give the readers of the volume the results of those studies and observations. Every medical man should review these papers.

ACTIONS FOR CIVIL MALPRACTICE.

Fourth Article.

ROBERT J. FOLONIE, LL.B.
CHICAGO, ILL.

Many actions for malpractice have their inception in the jealousy of fellow physicians, and it is a matter of regret that it must be recorded that a very substantial number of cases of this character would not have been brought but for the direct or indirect importunities of a later attendant.

Sometimes this is merely an egotistical claim and showing of superiority—a deprecating shrug of the shoulders or slighting, depreciating or careless remark. The patient incapable of judging which of the two is right, reads into the slighting words and actions a deeper significance than that perhaps intended, and claim for malpractice is well on its way.

Less frequently, but in a substantial number of cases, jealousy, ignorance or hostility causes a physician to actively further a claim for malpractice against another physician when no real basis in fact exists.

A typical case of the type under discussion was that of Dr. B., who operated upon a patient who had adenoma of long standing and the operation was in every respect a skillful one. The patient was later confined and the growth recurred in severe form. The physician attend-

ing on the latter occasion drew his patients from the same territory as the first attendant and had a deep-seated feeling of hostility. He told the patient that there was little he could do as the dangers of an operation were great and that he could not understand why the first attendant had not—“removed the whole gland so the goiter could not come back.”

Suit for malpractice against the first attendant resulted and the attorney for the plaintiff proceeded until about the time of trial, upon the theory that the operator was at fault for leaving a portion of the thyroid gland, thus rendering recurrence of the goiter possible. Upon the eve of trial, the second physician, realizing the impossibility of sustaining so indefensible a position, attempted to color the matter so as to make it appear that more of the gland should have been removed and testified that if substantially the whole gland had been removed, a recurrence would have been impossible, and that in his opinion the first physician was at fault for not removing more of the gland. Whether through ignorance or unscrupulous motives, he declined on cross-examination to admit any possibility of myxedema, by removal of substantially the whole gland, and a protracted trial was rendered necessary to refute the claims of plaintiff.

Too great stress can not be laid upon the advisability of refraining from unwarrantable criticisms of previous attendants, for their effects are disturbing upon the patient, produce a likelihood of misinterpretation and false conclusions by the patient and unfounded claims of malpractice.

A CONGRESS ON ANESTHESIA.

A Clinical Congress for the purpose of discussing and demonstrating Local, Spinal and Scopolamin-morphine. Anesthesia in Surgery and Obstetrics will be held in Chicago, January 26-28, 1915. The Chicago Medical Society will hold a joint meeting with the Congress on the evening of the 27th, at which the following program will be presented, with Dr. Bertha Van Hoosen chairman:

“Sacral anesthesia (Extradural Injection of Novocain, an anesthesia which is extensively employed in the Freiburg Frauen Clinic), and Scopolamin-narcophine Anesthesia During La-

bor." Kurt E. Schloessingk, Freiburg, Germany. Discussion, J. B. De Lee.

"Scopolamin-morphine Anesthesia in Abnormal Obstetrical Cases." John Osborn Polak, Brooklyn, New York. Discussion, Henry F. Lewis.

"Local Anesthesia in Caesarian Section." J. Clarence Webster, Chicago, Illinois. Discussion.

Clinics will be held January 26-28, by Emory Lamphear, St. Louis, Mo.; Clifford U. Collins, Peoria, Ill.; John Osborn Polak, Brooklyn, N. Y.; Emil Ries, M. L. Harris, Clarence Webster, Bertha Van Hoosen, Paul F. Morf, Mary McEwen and others.

Scientific papers covering alkaloidal anesthesia will be read at the evening sessions January 26-28, 1915.

RESOLUTION ADOPTED BY THE SOUTHERN ILLINOIS MEDICAL ASSOCIATION, NOV. 6, 1914.

WHEREAS: There is no law in Illinois under the operation of which dependable statistics of births and deaths are obtainable, and, as a result Illinois is lamentably behind other states in the Union in the matter of knowledge of birth and death rates,

WHEREAS: It is essential that a complete, accurate and prompt report of all births and deaths shall be made for various legal purposes and for efficient health administration; be it

Resolved, That the Southern Illinois Medical Association in regular session assembled, does hereby pledge its active co-operation with all other medical societies, associations and other organizations to the end that we may secure the enactment of a law by the next general assembly that will result in obtaining prompt, complete and dependable statistics on births and deaths in this state.

This resolution was unanimously adopted.

NOTICE.

The Civil Service Commission of Chicago will hold an examination for school health officers for all districts in the city December 11.

Applications for the examination must be filed

on or before December 10 with the commission, Room 610, City Hall.

Correspondence

FOR THE PHYSICIANS OF AFFLICTED BELGIUM.

The following communication speaks for itself and deserves the thoughtful consideration of every physician in this favored land. Editor.

While the condition of the Belgian people is rapidly becoming critical with famine and cold confronting them, it should not be forgotten that the physicians of this stricken land—and their families—are likewise in direst need; the holocaust that has swept over their country has also left them destitute—their homes, equipment, libraries, everything in fact, has been destroyed and lost. Hunger, cold and the most abject misery are all that they can expect unless those of us in happier circumstances take steps to relieve their condition—not next week, not tomorrow, but *NOW, TODAY!!*

Reluctant as we have been to make any move in this direction, for fear our purpose would be misinterpreted and misunderstood, it seems absolutely necessary that something should be done, if for no other reason than to draw attention to a class of men who are apt to be overlooked because of their activity for others. Therefore, hopeful that no one will place a wrong interpretation on the movement, or be so unkind as to think it possible for this or any other journal to seek any publicity from a condition so poignant with human misery, we have yielded to the requests of many interested friends and will straightway undertake the collection of an *AMERICAN FUND FOR BELGIAN PHYSICIANS*.

Keenly appreciative of our humble capacities, we turn to our colleagues, our editorial brethren, and our friends generally, to cooperate with us in this effort to raise a sum sufficient to relieve as much as possible the awful distress and suffering our Belgian brothers are undergoing.

From every one, therefore, who is willing to aid this movement we solicit some small sum—one dollar, fifty cents, twenty-five cents—any amount will help to swell the total. Our one great plea is for every one who intends to give something, be it ever so humble, to send it in early—*TODAY!* Remember "he gives twice who gives quickly" and the need of those who are to be aided by these contributions is urgent beyond expression. All contributions should be addressed to the Fund for Belgian Physicians, care *AMERICAN MEDICINE*, 18 East Forty-first, New York City. Make checks payable Belgian Medical Committee. In sending in contribution please give name and address of donor. These will not be published if not desired, but it will aid the committee to keep accurate records. This committee will work

with the Belgian Relief Committee and arrange with that body to make disposition of the funds collected.

Respectfully,

THE COMMITTEE IN CHARGE OF
THE FUND FOR BELGIAN PHYSICIANS.

Organized Under the Auspices
of American Medicine.

Send in your contribution today. Address,
Fund for Belgian Physicians
c/o American Medicine
18 East 41st Street
New York City.

THINK DOCTORS EASY MARKS.

Camargo, Ill., November 18, 1914.

To the Editor:

I am enclosing you a letter from Mrs. Harwood of East St. Louis with check filled in for \$25.00 payable to my order with the assurance that it will be signed and paid when I send the first patient to the institution. I have received other letters of the same character and suppose that I am not the only one.

There seems to be a studied effort on the part of vampires and blood-sucking ghosts of all sorts, to make of the physician a sort of runner for their nefarious traffic. Anti-nicotine, anti-narcene cures for the liquor habit all seem to find an easy mark in the doctor.

The number of these proposals received causes me to wonder how these people get such a cheap estimate of the medical profession as to think they can make a peddling wagon out of one and all, if only they offer a small retainer. I have wondered if they have not heard that some of us are fee-splitters and reason that this is on the same line? If we were to hurl these proposals back in their faces with some well chosen words I believe it would have a good effect.

I offer the following as an example of how I disposed of an attempt on the part of the Anheuser-Busch people to make me their agent. I guess nearly every doctor in the state got the same bait, "The Hurry Call," as I have seen it occupying the center table of a number of physicians. The idea they meant to convey was that the doctor was hurrying to his case of confinement and it was of the first importance that the stork should be there with the two bottles of Malt-Nutrine as soon as the baby arrived. I inter-

preted their picture in an altogether different manner. I wrote them as follows: "I am in receipt of "A Hurry Call." I agree with you that "it is indeed an appropriate wall decoration, not however of a doctor's office, but of an undertaker's establishment. The fleet-winged stork has caught the spirit of reform and is hastening to warn the baby of the dangers of your brew."

* * * They never answered. It seems to me we will have to do something that will elevate the personnel of the profession to a point that shysters, drunk cures, and get-rich-quick schemes will not count us so easy.

Yours truly,

W. A. WISEMAN, M. D.

East St. Louis, Ill., Oct. 7, 1914, No. 180022.

The Southern Illinois National Bank, pay to the order of Dr. William A. Wiseman, \$25.00 (twenty-five dollars). This check will be signed upon you bringing or sending us a patient.

THE PALMS SANITARIUM,
East St. Louis, Ill.

Dear Doctor:

Most states have passed stringent drug laws prohibiting the sale of habit-forming drugs. And you will, no doubt, have frequent inquiries from addicts in your community, as to where to go for a cure. (The Palms.)

We, The Palms, positively guarantee a perfect and absolute cure for all liquor and drug habits in three weeks. To the entire satisfaction of the patient.

We do not require a cent for treatment, board, room, nurse hire, or medical services until the cure has been effected. All we ask is a fair and impartial investigation so that we can prove to the most skeptical that we can fill the contract. It is with pleasure, Dear Doctor, that we inform you that Dr. Harwood is a specialist in diseases of women and an alienist from Mattewan Insane Asylum and gives *Crotalin* (rattle snake venom) and is making a 90 per cent success in epilepsy.

You understand, Dear Doctor, that we have a segregated institution and that our patients are limited to one hundred (100) males and females, they are five (5) miles apart. We pay particular attention to mental troubles and when patients cannot be benefited by treatment there is no charge only for their ordinary keep, perhaps much less than you could isolate them in any other institution. We assure you, Dear Doctor, that (The Palms) will give your patient better service for less money than any other institution in the United States or Canada.

Our sanitarium is the largest and best equipped in the Middle West, skilled physicians and trained nurses in constant attendance; cuisine unexcelled; excellent rooms; beautiful grounds; makes it an ideal place for mental rest. The enclosed check will be signed upon

your bringing or sending us a patient with the full understanding that the patient receives an absolute cure with the best of care and attention that competent physicians and trained nurses can give.

In confinement cases, Dear Doctor, you understand that we give an absolute painless broth. (*The twilight sleep*) as is practiced by Dr. Bernhardt Kronig and Karl Gauss of Freiburg Baden (Germany). We invite you to attend your own patients at (The Palms). Should that be impossible it is understood that Dr. Harwood, the (*House Obstetrician*), or any other Ethical Physician will carry the patient through.

In case, Doctor, you have at any time under your care a patient requiring special treatment, we feel sure that you will remember (The Palms).

Trusting that we may have the pleasure of entertaining you at any time you visit our city. (*Make this your home during your stay.*)

Very truly yours,

THE PALMS SANITARIUM,
Mrs. S. R. Harwood, Supt.

We think "Dear Doctor" the above needs no comment. Editor.

—Every little while we hear or read stories of wonderful preparations of nutriment in very condensed form—food in the shape of small lozenges, which men on long tramps (soldiers, for instance) can carry in their vest pockets, and make a square meal by swallowing one little tablet. Such stories appeal to the layman, especially to the militarist. The wish is father to the thought. But medical men know that such extreme condensation of nutriment is impracticable, for the reason that the *bulk* of our food is a very important element in it. The ash of foodstuffs, as we call it, while it has no nutritive value, serves a most necessary purpose; and if food were reduced to pure, unadulterated nutriment, and nothing else, we would soon die of food. In like manner, the bran of wheat, while it has no nutritive value, has an important use; and wheat that is stripped of its bran is deprived of a large item of its food value. Pettijohn's rolled wheat preserves this bran content, yet in such a way that it does not impair the wheat flavor—in fact, the wheat flavor is accentuated. This rolled wheat with bran comes nearer to fulfilling the natural function of the wheat than anything else in its line. You can sample it for yourself. Turn to the advertisement on page 5 and you will see how to obtain a sample.

It doesn't pay for you to take a passive interest in matters that affect either for good or harm the community in which you live.

Spasmodic cleanliness is better than no cleanliness at all. But it is being clean all the time that makes most for health, happiness and freedom from disease.

GASTRO INTESTINAL DISEASES.

(Continued from Page 610.)

rapid eating, etc. An acidity of the stomach often causes diarrhea and may be treated with large doses of hydrochloric acid, 20 to 30 m. three-fourths and again one and a fourth hours after meals.

Wegele⁸ divides colitis into two stages—the acute febrile and the chronic stage. In the treatment of the acute stage he recommends calomel .03 mg. twelve times a day for three days, then bismuth salicylate in small doses every hour until the stool is formed, and a liquid diet. In the chronic stage he uses chamomile injections for cleansing, followed by medicinal irrigation of a one per cent ichthyol solution; or when much pus is present, collargol solution—one-fourth per cent, or when hemorrhage is marked, gelatin or calcium chlorid, and in extensive ulceration a dermatol suspension.

Thus we see that all conditions of the large and small intestines are worthy of a most painstaking consideration. The tendency to assume that a case is a simple acute inflammation which will pass off in a few days, with the aid of a cathartic, is perhaps known to all of us. Or again the thought that a pain in the lower right quadrant means a nice appendectomy with a definite promise to the patient of a complete cure is now modified with "if's" and "and's" in our own minds. The so-called "neuro," whose tale of woe we have been hearing with the patience of Job, is entitled to the chance offered by the work of the pioneers in intestinal drainage. The general practitioner of today should be better known for his teaching and preaching rather than for his dispensing.

800 West 78th Street.

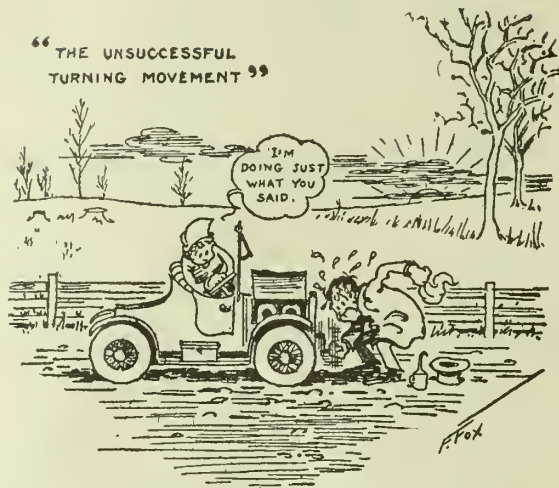
IS THERE A FIFTH GENERATION?

The Good Book says: "The sins of the fathers shall be visited upon the children even unto the third or fourth generation." Why did it not say the fifth or sixth generation? Because, it is asserted, there is no fifth or sixth generation; that the families afflicted with specific diseases run out, become extinct, cease to propagate after the third or fourth generation. Think it out, solve the problem to your own satisfaction. Some of our older practitioners could throw some valuable light on the subject out of their personal observations.—*The Madison County Doctor.*

⁸Med. Klin., 1913, p. 89.

Auto Sparks and Kicks

WAR PHRASES.



Courtesy Chicago Evening Post.

PICRIC ACID INCREASES POWER.

Using picric or citric acid or ether in motor fuel gives a much snappier explosion and therefore more power. The proportion is about one pint of any of these to five gallons of gasoline. It is necessary, however, to keep the spark down.

WASTE OF GASOLINE.

Quite often there will be an unnoticed drip of gasoline for a few minutes from the carburetor after the engine has stopped. This is not only a waste of fuel, but it is dangerous from the risk of fire. Usually this condition is due to the float not closing the needle valve opening promptly.—*Motor.*

MILES PER GALLON.

When the foot accelerator is used there will be less miles per gallon than when the throttle lever is used to turn on the power. And when a rich mixture is used at high speed the miles per gallon are cut down. When the throttle is set to cut off all fuel at will, coasting down hill adds to the number of miles to be had from a gallon of fuel.—*Motor.*

FORMULA FOR CLEAR VIEW.

1/2 Glycerine	3j
Water	3j
Common salt	?j

Put a little of the solution on some gauze and wipe all over the wind screen in a very thin layer,

but always being sure to do so in a downward direction, and a perfectly clear view will be obtained in the wettest weather.—*Exchange.*

MORE CEMENT MIXTURES.

- 60 lbs. Gilders' whiting.
 - 10 lbs. powdered hydrated lime.
 - 8 lbs. powdered casein.
 - 1 lb. powdered borax.
- Mix thoroughly. Apply as above.

CEMENT FINISH—INTERIOR USE.

- 60 lbs. Gilders' whiting.
 - 12 lbs. plaster of paris.
 - 8 lbs. powdered casein.
 - 1 lb. soda ash, 58 per cent.
- Mix thoroughly.

For colors, tint as desired with lime and alkali proof colors. Mix with water, preferably hot, to the right consistency to brush out properly. Let stand a half hour or longer before using.

Or,

- 86 lbs. plaster of paris.
- 7 lbs. powdered casein.

- 1/2 lb. powdered alum.
 - 2 1/2 lbs. powdered hydrate lime.
- Mix thoroughly. Apply as above.

TUBERCULOSIS.

A few months ago the Campbell-Kenton Medical Society offered a prize to the scholar of the High School for the best paper on tuberculosis. The first prize was awarded to Walter Binder of the Junior Class. It is so good that we reproduce it here:

"My arm is most mighty.

I spare none, rich and poor, young and old, alike
they fall in my path.

My fingers are small but powerful.

The flies and mosquitoes are my helpers.

I thrive in filth and unclean places.

I live in exposed milk and food.

I float in the water of rivers.

I fly in the air.

It is impossible for us to have the things that make for community beauty, health and comfort unless we have a united effort for the common good. If only we look at things from the viewpoint of community good and all work together for that end, then community growth and progress along these lines will follow as a matter of course. And this means, of course, that no one citizen can afford to be indifferent to matters that affect his neighbors' surroundings as well as his own. In other words, we must all be good neighbors in order that we may have good neighborhoods.

Society Proceedings

ADAMS COUNTY.

The regular meeting of the Adams County Medical Society, held November 9 at the Hotel Newcomb, proved to be the best in point of attendance and in scientific program of any of the 1914 sessions.

The business session began at 11 a. m. and continued until time for the lunch, when adjournment was taken to the breakfast room of the hotel, where a three-course dinner was served.

Two new names were added to the list of members—Dr. Walter D. Stevenson, oculist, formerly of East St. Louis, and Dr. Earl Caddick, who recently moved to Quincy from German Valley, Illinois. Dr. A. L. Brittin, president of the Illinois State Medical Society, and his estimable wife arrived on the noon train and were met by Councillor Center, who brought them to the hotel, where they met the members, enjoyed lunch and a social hour.

The first part of the afternoon session was devoted to the "Milk Question," and was attended by Dr. A. L. Brittin, eight members of the Civic Improvement League (Quincy), Miss Virginia Kelly of the Cheerful Home (Quincy), Miss Emma Ryniker of the Adams County Anti-Tuberculosis League, and about twenty-five members of the medical society.

Several very carefully prepared papers were read, as follows: Dr. E. B. Montgomery, "Milk Borne Diseases"; Dr. W. W. Williams, "Adulteration of Milk"; Dr. Warren Pearce, "Dairy Inspection"; and Dr. C. I. Tripp, "A Model Dairy." The discussion was opened by Drs. Stine, Ericson and Bates, and was both interesting and instructive. The matter of attempting to improve Quincy's milk supply was referred to the Public Health and Legislative committee—Drs. Koch, Werner and Knox. They are instructed to co-operate with committees from various other city organizations interested in pure milk.

Dr. Brittin then addressed the members on the subject of "Medical Organizations" and "Gastric and Duodenal Ulcer from a Medical Standpoint." Both papers were well received and thoroughly discussed.

The members showed their appreciation to our State President by attendance, by discussion of his papers, and finally by giving him a rising vote of thanks.

At 4 p. m. the meeting adjourned.

Respectfully,

ELIZABETH B. BALL,
Secretary.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, October 7, 1914.

1. Spurious and Genuine in the Therapy of Functional Nervous Disorders; Tom A. Williams, Washington, D. C.

2. The Advantages of Institutional Treatment in Borderline Cases; Oscar A. King.

3. Bone Syphilis of the Cranium and Spine; G. Frank Lydston.

Regular Meeting, October 14, 1914.

1. The Value of the X-Ray Examination in the Diagnosis of Gastric Cancer; James T. Case, Battle Creek, Mich.

2. Roentgenoscopy of the Lungs; with Lantern Slides; A. W. Crane, Kalamazoo, Mich.

3. The Value of the X-Ray in Determining the Etiologic Factor in Various Obscure Conditions; Adolph Hartung. Discussion, E. S. Blaine, M. M. Portis.

Regular Meeting, October 21, 1914.

1. War from the Standpoint of the Military Surgeon; Col. Wm. S. Stephenson, M. C., U. S. Army, Chief Surgeon, Central Division.

2. Perforating Wounds of the Abdomen; Lieut. Colonel Jacob Frank, Surgeon General, Illinois National Guard.

3. The Military Surgeon on the Firing Line; Lantern Slides; Col. P. J. H. Farrell, former Commander in Chief, Army of the Philippines.

Regular Meeting, October 28, 1914.

1. Certain Irregularities of the Heart; with Lantern Slide Demonstration; James B. Herrick. Discussion, Jos. M. Patton.

2. Roentgenology of the Diaphragm in Abdominal and Thoracic Disease; Hollis E. Potter. Discussion, E. J. Beck.

Regular Meeting, November 4, 1914.

1. Diagnosis of Malignancy Made During Operation; Emil Ries.

2. Diagnosis of Pulmonary Tuberculosis with Especial Reference to the Value and Reading of the Roentgen Plate; Kennon Dunham, Cincinnati, Ohio.

3. Modern Aspects of Cardiac Overstrain; Charles Spencer Williamson.

Regular Meeting, November 11, 1914.

1. The Present Status in the Etiology of Cancer in the Light of Experimental Research and Clinical Observation; H. R. Gaylord, Buffalo, N. Y. Discussion, Robert Zeit.

2. The Prophylaxis of Cancer from a Medical Standpoint; B. W. Sippy. Discussion, Chas. L. Mix.

3. The Prophylaxis from a Surgical Standpoint and the Localization of Metastases; John B. Murphy. Discussion, James B. Herrick.

Joint Clinical Meeting with the West Side Branch at the Cook County Hospital, November 18, 1914.

1. Acute Endocarditis; Pernicious Anaemia; S. R. Slaymaker.

2. An Interesting Case of Cirrhosis of the Liver; Jos. M. Patton.

3. Heart and Kidney Cases; Wm. J. Butler. Discussion, Jos. L. Miller, Jos. A. Capps.

Regular Meeting, November 25, 1914.

Joint meeting of the Chicago Medical Society and the Chicago Academy of Surgery.

1. Industrial Eye Injuries; Henry S. Gradle.

2. A Study of the Histology and the Reflexes of the Appendix Vermiformis; John Dill Robertson.

3. Concerning Some of the Diagnostic Difficulties and Surgical Problems of Renal Tuberculosis; Philipp Kreissl.

ENGLEWOOD BRANCH.

The Englewood Branch held a meeting Tuesday evening, November 3, 1914, at 9 o'clock, at the Englewood Hospital. President Dr. Joseph Sherlaw presided and the following program was presented:

Dr. S. A. Waterman presented three interesting cases. The first case of congenital dislocation of the hip joint in a little girl. X-ray plates were shown showing the head of the femur on the dorsum of the ilium. The second a case of ulcer of the stomach. The third a specimen from a case of congenital atresia of the esophagus. The specimen showed the pharyngeal end as a blind pouch some four inches long, the gastric end being attached to the trachea. The child died on the eighth day.

Dr. Charles Kahn then read the first paper of the evening on "Treatment of Tetanus by Intra-Spinal Injections of Antitoxine."

The paper was well written and concluded with the report of a case of tetanus following a burn. The patient recovered.

Dr. Ernest E. Irons opened the discussion and gave a most interesting talk on the prophylaxis and treatment of tetanus. On the subject of prophylaxis he stated that the first reports from the French showed no case of tetanus developing where prophylactic dose had been given. Later reports from the Germans showed 31 cases following a prophylactic dose. Irons had two cases in which tetanus developed after prophylactic dose of antitoxine had been given. He explained this by stating that the antitoxic power of the serum is limited to about two weeks where a serum from a different species is used. That when a serum from the same species is used the period is longer, being from five to six weeks. In this respect the veterinarians have the advantage in being able to use a serum of the same species. He recommended that a second prophylactic dose be given in about two weeks and especially so if the wound has not healed. He spoke of the treatment after tetanus had developed. The serum should be given by intravenous injection to neutralize the free poison in the blood. His rule to estimate the amount needed was 2,000 units for every ten pounds in weight—that the average adult required 15 to 20,000 intravenously. Three thousand units should be given by intra-spinal injection the first day and this should be followed the second by an increased dose of 5,000 units. He stated that up to about one year ago—the end of 1913—the cases in which the toxine had become fixed in the nervous system were practically hopeless. He then recited the interesting animal experiments done by Park of New York during the latter months of 1913, in which it was shown that animals receiving fatal doses of toxine and waiting until same had reached the nervous system could be saved by intra-spinal injections, while those treated by the subcuta-

neous or intravenous method died. He gave interesting statistics of 225 cases treated at the Cook County hospital, also of 53 cases treated at the same institution from 1908 to 1913. Of the latter all but eight received serum in varying amounts. The mortality was over 80 per cent. Of the 8 receiving no serum 7 died. Since then 12 cases have been treated by the intra-spinal method with a mortality of 50 per cent. Of the six who died two were moribund. In concluding, he stated that by the intra-spinal method plus intra-venous, the mortality had been reduced 30 per cent. That the distribution of the toxine should ever be in mind, that some is free in the blood and some fixed, the object being to neutralize all free toxine and do it early and to reach that fixed in the nervous system by intro-spinal injections.

Dr. Carl Langer, in opening his discussion, stated that it was useless to try and add anything to what Dr. Irons had said, but nevertheless gave us a most valuable talk on the subject. He outlined the ideal treatment, which was summed up as:

1. Intra-venous.
2. Intra-spinal.
3. Intra-neural-injection direct into large nerve trunk.
4. Local.
5. The patient, nurse, medicinal, quiet surroundings, etc.

The second paper was on the subject of "The Use of Pituitrin in Obstetrics," by Dr. Robert L. Van Dellen." After reviewing the structure and peculiarities of the pituitary gland, the introduction of the extract into obstetrics, its action on the uterus, etc., the speaker recited his personal experience with the use of pituitrin in some 125 cases.

The discussion was opened by Dr. G. J. Hagens, who stated that he had had reaction in far more than 1 per cent, the amount of failures given by the essayist. That in fully 50 per cent of his cases—some 25 in which he had used pituitrin—he had no response. He stated that writers were not definite in giving their indications for its use, that one should know the exact conditions present, whether there is any obstruction, etc.; that the fact that the cervix is dilated or nearly so is not enough; the correct anatomical conditions should be carefully noted. In cases where pituitrin has been given and the child is not delivered within one hour Hagens advises the use of instruments to save the child.

Dr. A. G. Shortle of Albuquerque was present and gave an interesting talk on his experiences in the treatment of pulmonary tuberculosis by pneumo-thorax as carried out at his sanitarium. He briefly gave the records of 86 cases so treated during the past three years.

The meeting was a great success, our seating capacity being taxed to the limit. The attendance was 103.

ARTHUR G. BOSLER,
Secretary.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular meeting, held April 21, 1914, with the President, Dr. Otto J. Stein, in the chair.

CASE OF SINGER NODULE ON THE VOCAL CORD.

Dr. George E. Shambaugh presented a case, a patient from whom he had successfully removed a singer nodule from the vocal cord. The patient was a clergyman, and had been troubled with hoarseness for about three months, which interfered very much with his speaking voice. The nodule was about the size of a pinhead and was located on the usual spot for these nodules—that is, at the junction of the anterior with the middle third of the vocal cord.

Dr. Shambaugh showed the instrument which he has used in several cases to remove these nodes. The ordinary forceps are entirely too clumsy for this work, and the use of cauterizing substances is obviously dangerous.

Such nodules often develop rather quickly, as illustrated by a public speaker whose voice became affected during a re-election campaign, and in another case cited where the defect had followed the excessive use of the voice during a football game.

There is a tendency for the nodes to disappear spontaneously, but very often they will persist indefinitely until removed in an operative way.

CASE OF FRONTAL SINUSITIS AND ETHMOIDITIS WITH AN EXTERNAL FISTULA.

Dr. Shambaugh showed a case of a young lady who was referred to him because of a fistula about one-quarter of an inch above the inner canthus of the eye, which had existed for seven weeks. The development of the fistula followed six weeks of severe headache, which had been treated as a frontal neuralgia. She gave as the cause of her trouble an accidental kick from a child's shoe six weeks before her headache developed. The maxillary sinus on that side was quite dark. Both frontal sinuses were small, as was shown by the X-ray plate, and the transilluminations, for this reason, gave very little difference on the two sides. A removal of the middle turbinated body and exenteration of the ethmoid labyrinth gave a free passage into the frontal sinus. The discharge from the fistula ceased immediately after the operation and the case went on rapidly to complete recovery.

DISCUSSION.

DR. E. L. KENYON. Ordinarily singer's nodules are dependent upon misuse or overuse of the voice. In the case referred to a nodule appeared following scarlet fever, on the cord, but in the usual place of the singer's node. There may be important significance in this, because many years ago Fraenkel discovered a little gland on the cord, not regularly, but at times, which was situated between the middle and anterior third of the cord. Later, Imhofer, of Prague, in three cases of singer's nodes saw a secretion coming out from a gland in this particular region, thus confirming Fraenkel's discovery. It seems that singer's nodes from this latter glandular cause are in contrast to the more usual non-inflammatory

type, accompanied by a local inflammation. The local inflammation produces an inflammation of the gland, hypersecretion of the structure, and, by the closing up of the duct leading outwards, a swell on the cord is produced. That is a very important fact to know, from the standpoint of the singer. Many of the people with these nodes have voices worth many thousands of dollars, and they must be handled with extreme care. If you cauterize a node due to such glandular inflammation, you are almost certain to prevent recovery, because you are liable to close up the duct of the gland. If you operate, you are very likely to do the same thing. Clinically, it seemed to Dr. Kenyon, that he has never seen one, to know that it was of this type, but it is stated that this particular form of singer's node has a flattish contour, and, clinically, that it almost always gets well simply by rest of the voice. The speaker thought it well to bear that fact in mind, since the case mentioned had followed a disease which could easily have produced inflammation of the vocal cords.

DR. OTIS H. MACLAY was interested in the frontal sinus case especially, owing to the fact that it was a chronic case and was cured by intranasal work. This case would indicate what he always believes, namely, that in these cases of frontal sinus trouble it is well to do all we can intranasally before undertaking the external operation. He reported a case seen by him in which there was a large mass of pus in the forehead and a denuded area of bone. There was no external opening, but you could feel when the pus was relieved that there was bone necrosis. Good drainage was obtained through the nose. A small incision was made in the skin under gas; the pus poured out. In a couple of days there was no drainage from the external wound. The intranasal work consisted of removal of the anterior portion of the middle turbinate and the anterior ethmoid cells, and a liberal enlargement of the naso-frontal duct.

DR. JOSEPH C. BECK said that he would interpret the x-ray picture shown by Dr. Shambaugh as indicating an ethmoiditis. It is very easily shown that the ethmoidal cells and not the frontal are involved. Removal of the turbinate and cleaning out the ethmoid would clear up the condition.

In reference to the singer's nodes, he has recently removed two by means of the suspension method, which has proven satisfactory in his hands. These nodes are very easily removed with an instrument similar to that described by Dr. Kenyon. With such instrument you just get the edge of the node, and it is impossible to go any deeper.

DR. CHARLES H. LONG asked Dr. Shambaugh, or anyone else who had had experience with these growths, if they had ever used fulguration?

DR. O. J. STEIN said that he had used fulguration, with no satisfaction.

DR. R. H. BROWN cited the case of a man, seventy-five years of age, who had a sinus affection similar to that in the case reported by Dr. Shambaugh. This had been discharging externally for some time. He was rather old for extensive operation; however, some of the middle turbinal was taken away. A large polyp was found and removed, leaving the ethmoid cell from which it grew. This was followed by a good result. It was plainly a case of anterior ethmoidal cell disease. The discharge continued internally, but never broke externally again during the five remaining years of life.

DR. J. R. FLETCHER cited a frontal sinus case. About two years ago a lawyer was sent to him with an orbital abscess. The pus was coming from the upper eyelid. He had a history of having swelling there three or four times before, and had been under treatment for about six months. The speaker washed the frontal sinus, and asked for an x-ray picture, but the man did not seem to think it necessary. Finally, with a probe entering here (indicating), it went in such a short distance that he could not understand it. He probed into the frontal sinus, and could not meet the end of the other probe. He started again and went in for a short distance and met it. So he came to the conclusion that he had an ethmoidal bulla to deal with. He got absolutely nothing out of the frontal sinus two or three times. He could go a relatively short distance, and by bringing the probe out and going

just a little behind it, he could go a much greater distance. He then washed that out with simple bluing to see whether there was actual communication, or whether he had deceived himself by finding denuded bone. The probe was a cannula. Through that he passed this ordinary bluing water and it came out through the nose. The anterior end of the middle turbinal had been removed before he came to the speaker. He simply mentioned these bullas, because we must remember the two kinds—the ethmoidal bulla, which is attached to the frontal plate, and the bulla frontalis, which is attached to the cranial plate.

DR. SHAMBAUGH, in closing, stated that the instrument with which he had removed the nodes from the vocal cords was small enough to be placed between the vocal cords, as suggested in the remarks by Dr. Kenyon.

As to the question whether in the second case presented there was any frontal sinus disease, Dr. Shambaugh pointed out that because of the small sinus, the x-ray plate and transillumination were deceptive, since neither gave any clear indication of frontal sinus trouble, and yet on introducing a cannula and irrigation pus was washed out of the frontal sinus.

BRAIN CYST.

Dr. H. Kahn presented a case of brain cyst which had been operated on, and presented two points of interest: First, the long-standing period of the disease; second, the help of the x-ray in diagnosing the condition. This latter point was in opposition to a statement once made by Dr. Beck, that he never had any help from the x-ray. Dr. Kahn did not know whether the x-ray was absolutely conclusive or not, but it was of great assistance in this case. The man was twenty-five years old. When nine years of age, while driving, he struck his head and apparently suffered from a fracture of the skull. He was operated on for this, so he says, but no evidence of such operation could be found at the present time by the speaker. From then up to the time when first seen the man had several attacks of otitis media, for which he was treated. He came to the hospital about the 3rd of December, complaining of excruciating pains in the ear and right-sided headache, and was admitted to Dr. Kahn's service. This headache was definitely located on the right side from the back of the neck to between the eyes. Very sensitive to touch and pressure. At that time temperature was normal, pulse 72 to 76. The ear showed a small pin-point opening in the inferior posterior quadrant, with pus pulsating under pressure. A paracentesis was performed, which did not seem to relieve the symptoms. The headache and pain both continued. In addition, he had a nystagmus to both sides. On washing out the ear with hot water the nystagmus was uninfluenced; cold water gave a very strong and pronounced nystagmus to the left. He was kept under observation for four or five days, when suddenly one day, while in bed, he became very cyanotic and very dyspneic; the pulse became weak and thready for a little while. When he came out of this attack the headache was very intense on the right side. He had three or four similar attacks. Two x-ray plates were made, with hope of finding what was in the mastoid, which was thought might be at fault. The frontal view showed a sclerosis of the mastoid above and a line below, showing a large terminal cell and a dark

area in the brain shadow. Those findings were verified at operation. Dr. Fletcher came in consultation at that time, and pointed out this mastoid cell. The second plate was rather difficult to read. It was taken at an angle, showing the mastoid with a black area above. A few days after these pictures were taken a radical mastoid was performed, showing the condition of the mastoid, as read in the picture by Dr. Fletcher. The brain was exposed and a needle was inserted in an upward forward inward direction, as indicated by the dark area of the x-ray plate and a syringeful of thin fluid was withdrawn, which on culture was found negative after six days, showing no organisms at all. Differential count showed 36 polymorphonuclears, and 14 mononuclears; no gram-positive organisms shown. The wound was left open, and in a couple of weeks it was healed up. It was not thought wise to open the cyst at the time of the mastoid operation, for fear of infecting the brain. At the end of a month the patient returned with the same symptoms of headache, nystagmus, and so forth. After three or four days in the hospital a lateral opening was made, the bone was drawn back, showing absolutely no pulsation of the brain. A needle was inserted, yellowish-brown fluid was withdrawn, and immediately pulsation of the brain followed. On slipping back the dura the vessels of the brain were found very large and varicose. It was impossible to make an incision into the brain without great hemorrhage. A trap-door opening was made, about one inch by two inches, and in spite of hemorrhage the speaker introduced his finger, and found the cyst to be about three by two and one-half inches in size, and apparently multilocular, with a large multilocular area above. Hemorrhage was very great, so the wound was firmly packed, leaving a strip of iodoform gauze for drainage. The packing was left in for twenty-four hours, when it was removed gradually, and at the end of forty-eight hours it was all out. Apparently, the patient is cured—at least, up to the present time. Whether the cyst will refill or not, the speaker could not say. All the symptoms disappeared except a slight nystagmus to the right. The other symptoms have all disappeared entirely, and the patient appears to be in good health now.

The speaker forgot to say that the tuning-fork showed the Weber to the left—the good ear—high tones apparently not heard; Schwabacher not heard; somewhat shorter Rinne.

DISCUSSION.

DR. J. R. FLETCHER said the interesting point about the case to him was that it was a middle fossa abscess, which Dr. Kahn had omitted mentioning. In spite of that, the man had a nystagmus. The nystagmus was attributed to the size of the cyst, making indirect pressure upon the cerebellum. The patient had an exaggerated patellar reflex on the same side. Another important thing was that the man had had several of these attacks previously, consisting of lowering of respirations, lowering of temperature and subnormal and lowered pulse. When Dr. Fletcher first saw him the pulse was 85; respirations 14, and temperature 97°, which was practically normal. One other interesting feature about the case was that it was possible to make a diagnosis of latent abscess. Nothing could be seen. The speaker's idea was that sixteen years before

this man had had an abscess in the middle fossa, and that it was at present in the period of latency; that these attacks were explained on the basis of hemorrhage into the abscess, or into the area of the cyst—which it turned out to be. Blood was found in the first puncture.

DR. J. HOLINGER asked if there was any pus shown at any time, or was the contents of the cyst or abscess not simply cerebrospinal fluid mixed with the blood? The whole history seemed to him to be somewhat similar to one that he was much interested in. He had made a diagnosis of brain tumor from the tuning-fork findings four years ago. The patient had been getting along very nicely for four years, after a decompression operation, but again had attacks of dizziness, severe headache, and her sight and hearing grew worse. A second operation had to be performed. The same flap as that used at the first operation was formed. The intracranial pressure was less than at the first operation. As soon as the flap was down a cyst of the size of a hen's egg showed, and a large amount of cerebrospinal fluid escaped. The cyst opened and it was evident then that it was the posterior horn of an enlarged lateral ventricle. The fact that Dr. Kahn's cyst was drained towards the ear does not speak against the possibility that it might have been the posterior horn. This is important on account of the therapy of the case. If this is an internal hydrocephalus, it will fill up again; it will have to be permanently drained, by inserting a small silver drain from the cyst to underneath the outer skin. The cerebrospinal fluid, which is produced in too large quantities, causes these enlargements. It will be led outside of the skull cavity and will be absorbed in the tissue outside of the skull and intracranial pressure cannot rise again.

DR. JULIUS GRINKER, on invitation, simply wanted to ask a few questions. First, was a lumbar puncture made, and, if so, what was the finding? Second, he would like to have an exact description, topographically speaking, of where the cyst was really found and opened. Third, is this not, after all, a meningitis serosa circumscripta, a condition which had been frequently described in connection with inflammatory conditions of the ear?

DR. JOSEPH C. BECK thought that x-rays were of value in mastoid cases. The round cell that was pointed out to him was, in his opinion, a broken-down mastoid cell. He could not see that the plates passed around by Dr. Kahn showed anything definitely. Dr. Beck is of the opinion that x-ray pictures show best when stereoscopically taken.

DR. KAHN, in closing, said he had been helped somewhat by x-ray pictures, and especially in this case, because he had found the cyst in the place where the dark shadow apparently was in the plate.

In answer to Dr. Holinger, no pus was found in this fluid at all. It might be, of course, a lateral ventricle diverticulum, but there was the fact to be considered that it apparently was a secondary result of the traumatism years before. The cyst may fill up again, but it would be necessary to wait to see whether it did or not. The case was presented merely to show that it had been operated on with apparent success.

DR. HOLINGER said that so long as the wound is still open it would be a good plan to insert a drain.

DR. KAHN said he was very glad of the suggestion and would do it.

Replying to Dr. Grinker's question: A lumbar puncture was made and was negative. As to the convulsions, he could not say. The cyst was opened, incision being made directly over the external auditory meatus, and so far as the convulsions of the brain at the time was concerned, it was apparently impossible to tell exactly, on account of the varicosity of the vessels and the apparent edema about them. He did not think it could have been a circumscribed meningitis because it was too deeply situated within the brain structure. At operation, he went through an inch, approximately, into the brain structure. It was always beneath the meninges, and so he thought it would not have been of meningeal character, and must have been in the brain.

CASE OF SIMPLE MASTOID OPERATION UNDER LOCAL ANESTHESIA.

Dr. George W. Boot presented a little girl who had had mastoiditis, but was in too bad a condition to be given a general anesthetic, and it was necessary to operate under local anesthesia, namely, one per cent novocaine. She stood the operation very well, made very little complaint of pain—only when going through the soft tissues.

Dr. Boot also showed a specimen from a young woman who was taken sick with symptoms pointing toward suppurative otitis media.

THROMBOSIS OF SUPERIOR LONGITUDINAL SINUS.

M. H., female, aged 22, single, university student. Admitted to the German Hospital on June 3, 1911, in an unconscious condition. Patient had a cystitis on admission, for which she received boric acid irrigations of the bladder. Her temperature was 102°; pulse 80; respiration 22. On June 4 the patient was restless, crying loudly and tossing about. She slept at intervals. Part of the time her limbs were rigid and the back of the neck painful. Temperature ranged from 101.6° to 103°; pulse 84 to 108; respirations 24. Blood examination gives 90 per cent hemoglobin by the Talquist scale. Whites, 14,680; reds, 4,500,000. Urinalysis gives color dark straw; transparency clear; a deposit of heavy sediment; specific gravity 1022; reaction alkaline. One hyaline cast found; numerous epithelial cells present. Thirty-two pus corpuscles present in field of 1/6 objective; fourteen blood corpuscles present in field of 1/6 objective. Bacteria present; spermatozoa absent; albumin present in moderate amount; sugar, none; calcium oxalate crystals numerous; yeast fungus present.

June 5: Patient very restless; crying; biting lips at times. At 5 p. m. patient had severe convulsion; had urinated involuntarily ever since admission; menstruating. At 12 m. very restless; crying; throwing left arm and leg continuously. Temperature ranging from 102° to 102.4°; pulse 80 to 120; respirations 22 to 26. On June 6 urinalysis showed: Color, amber; reaction, acid; no casts; 5 to 6 epithelial cells in 1/6 objective; 25 to 30 pus cells in a field of 1/6 objective; a few bacteria; albumin present in moderate amount; sugar, none; a few calcium oxalate crystals are present; triple phosphates numerous; no amorphous deposits. At 1 a. m., patient very restless; slept about one and one-half hours during the night; drank about twenty ounces of water. At 5:36 a. m., convulsion lasting nine minutes; right eyelid twitched, then right arm and head, then leg. Left part of body remained rigid. Right arm twitched for three minutes after rest of body stopped. At 8:33 convulsion lasting thirteen minutes. At 10:33 convulsion lasting twenty-one minutes. Left side of body quiet. At 4 p. m., lumbar punctured, followed by convulsion. Patient very restless. At 7:38 p. m., slight convulsion, lasting six minutes. At 10:30 p. m., convulsion lasting eighteen minutes. Patient hiccupped during entire

convulsion. Temperature on this day ranged from 101° to 104°. Pulse 80; respirations 80 to 136.

June 7: 2:15 a. m., convulsion lasting seven minutes and starting in right arm. 3:10 a. m., convulsion lasting four minutes and starting in right arm. Some hiccough. 4:12 a. m., convulsion. 6:13 a. m., convulsion lasting eighteen minutes; cried before and moaned during the convulsion. 10:03 a. m., convulsion lasting seven minutes. 11:10 a. m., convulsion lasting eight minutes.

Dr. Boot saw her about noon and found the drum membranes were not markedly reddened, but slightly so, and gave the appearance of those seen in a middle ear catarrh. Accordingly he did paracentesis. The trouble in this case was very obscure. The patient could not talk. She would look in the direction of those in the room, but gave no sign of comprehending anything said, and made no reply.

1:30 p. m., convulsion lasting twenty minutes. 4:30 p. m., convulsion lasting nine minutes. 6 p. m., convulsion lasting four minutes. 8:10 p. m., convulsion lasting eight minutes. 8:20 p. m., twitching, not severe. 9:30 p. m., convulsion lasting eight minutes. Temperature on this had varied from 101° to 102.4°. Pulse from 100 to 156. Respirations from 20 to 26.

June 8: 1:30 a. m., convulsion lasting eight minutes. 4 a. m., convulsion lasting nine minutes, during which she screamed continually. 5 a. m., convulsion lasting four minutes. 7 a. m., convulsion lasting four minutes; very restless and screaming at times. 1 p. m., convulsion lasting five minutes. 4:15 p. m., convulsion lasting nine minutes. 7:30 p. m., convulsion lasting four minutes. 10 p. m., convulsion lasting four minutes. Tossing of arms and legs continually. Temperature varied from 100.6° to 102.2°. Pulse varied from 100 to 158. Respirations from 22 to 28.

June 9: 6:30 p. m., convulsion lasting six minutes. Convulsive attacks every few minutes. Noon, convulsion for three minutes. 2 p. m., slight convulsion. 9:55 p. m., death.

POST-MORTEM NOTES.

June 10, 1911: Body of a well-developed young woman said to be twenty-two years of age. Nothing abnormal was noted externally. Only the head was opened. Before the dura was opened the brain seemed to be unusually dark. On removal of the dura the sinuses of the vertex—the superior longitudinal sinus, the lateral sinuses as far as the mastoid on the right side, and throughout on the left side, and the trochlear, were all thrombotic, as were also all the veins of the meninges of the vertex. The thrombosis and congestion were most marked on each side of the superior longitudinal fissure and on the left side along the fissure of Rolando. About the middle of this fissure on the left side was a small amount of yellowish exudate in the meshes of the pia. Traces of a similar exudate were seen here and there lying alongside of large thrombosed veins. Most of the brain was firm, but lying parallel to the superior longitudinal fissure was an area about 2 by 5 cm. that felt distinctly soft, as if it were a cavity filled

with liquid. There was no evidence of disease of the mastoid. The foramen for the mastoid vein was larger than normal—about 4 to 5 cm. in diameter. The base of the brain showed no thrombosis or exudate of any sort. After hardening for several days in a ten per cent solution of formalin the brain was cut in horizontal sections. The right hemisphere showed a marked area of congestion in the frontal lobe. The left hemisphere was softened throughout the frontal and parietal lobes. The congestion was most marked in the region of the insula and the softening most marked about the center of the white matter. The softened area showed numerous points of congested vessels. The area not congested was a greenish-yellow color, and appeared as if on the point of breaking down into pus. All the larger veins were thrombotic. The brain and dura with the thrombosed sinuses were put into ten per cent formalin solution for further examination. When the brain was sectioned after hardening it was found that there was a large area of softening in the left hemisphere and a smaller area in the right. It appeared as if, had the patient lived a few days longer, the whole left hemisphere would have become one large abscess cavity.

DISCUSSION.

DR. ROBERTSON asked the speaker if he thought the trouble came from the ear or nose, to which Dr. Boot replied that, so far as he could find out, it came from neither of them.

DR. SHAMBAUGH asked if there was the fluctuating temperature of a sinus thrombosis.

DR. BOOT replied that there were no sudden falls of temperature; no chills. The only thing to point to the source of the infection was an old cystitis.

DR. C. M. ROBERTSON said that longitudinal sinus thrombosis is one of the rare things found in inflammatory conditions in the brain. He thought that in this case it was probably a post-mortem clot occurring near the end of the life of the patient. If she had a thrombosis of the longitudinal sinus she would certainly have been in worse condition than if she had thrombosis of the lateral sinus, and the lateral sinus on that side would probably be thrombosed anyhow. There have been a few cases of longitudinal sinus thrombosis, but they are decidedly rare, and nearly all follow infection about the region of the cribriform.

DR. JULIUS GRINKER said that most of the cases of longitudinal sinus thrombosis have been diagnosed in the same way as that of Dr. Boot—that is, post-mortem.

DR. BOOT, in closing, and replying to Dr. Robertson, said that the changes in the brain, the softening and the hemorrhages, pointed to the thing being an ante-mortem affair—not a post-mortem clot.

THE SPEECH ASPECTS OF A CASE OF CLEFT PALATE.

Dr. Elmer L. Kenyon presented a patient, Mr. E. T. B., a man of twenty-four years, who represented the less complex speech problems of cleft palate. The lip cleft was closed in infancy, but repeated operations on the palate itself between five and seven years were unsuccessful. Not until two years ago was the palatal cleft closed, these later operations—but not the earlier ones—being done by Dr. T. W. Brophy, to whom the speaker was indebted for the patient. Originally, the palatal cleft did not extend backwards completely through the posterior border of the soft palate, but the partly intact soft palate was so short

as to permit the tip of the tongue to be easily passed backwards and upwards into the naso-pharynx. After closing the bony cleft the problem consisted in lengthening the soft palate. This was done by utilizing both palato-pharyngei muscles and the left palato-glossus. The result was a long intact palate, flexible, and distant at the lower border of about three-quarters of an inch from the posterior wall of the pharynx. The levator palati muscles take hold well on phonation, but so high above the lower border of the newly constructed part of the palate as to make the application of their power in raising the palate of little effect on the newly constructed lower part. But the power demanded for raising the lower part of the palate is much increased by the relative tightness of the lower border. Consequently the distance of the newly made lower part of the palate to the posterior wall is not reduced on phonation.

The operative result attained was much more than one could reasonably hope for, considering the shortness of the original palate, and its distance from the posterior wall. The point to be raised later concerning the result was raised not critically, but only in the hope of throwing a little additional light on the speech aspect of the surgical problem involved.

Commenting on the speech of the patient, it should first be remarked that a deflection of the nasal septum, together with chronic vaso-motor enlargements of the lower turbinates produced some rhinolalia clausa. The septum was therefore resected, without, however, disturbing the vaso-motor swelling, which still continues and which will not be disturbed. The patient habitually talked rapidly and with a high pitch, largely in the head register, and with habitual lack of clearness. By persistent effort he now talks usually in the chest register and more slowly and distinctly; and certain minor imperfections of articulation have been corrected. But while the speech is markedly improved, the voice, of course, remains nasal, though less so than formerly. There is no hope of producing movement in the lower part of the soft palate, even with the massage being carried out, owing to the conditions previously mentioned.

The question the speaker wished to raise was in reference to the distance the soft palate had best be built downward in such cases, providing it be operatively possible to stop at any point desired. The downward extension of the palate should be such as not to discourage action of the levator palati muscles, and failing in securing such action the palate should be only so low as should encourage, so far as possible, the outgoing vocal breath to take the oral route of exit rather than the nasal. This point should be determined with reference to the position of the posterior part of the tongue in the production of those vowels likely with an open palate to be most nasal, particularly as in *boot*. In these sounds the posterior part of the tongue raises to a median position in the mouth close to the immobile soft palate. If the lower border of the palate lies opposite the position of the

arch of the posterior part of the tongue when the above sounds are produced, the air will be directed for the most part into the nose; whereas, if the lower border of the palate ends slightly above the center of this arch, the vocal breath can more readily pass into the mouth; a too low position of the palate tends, in other words, to produce a funnel-like connection of the laryngo-pharynx and the oro-pharynx behind the immobile palate, and a slightly higher position tends to discourage such a tendency. But if the palate as it descends tends quite sharply backwards, the increased length has no disadvantage of this kind.

The roughness of the anterior surface of this palate, due to the building of the new palate and to the remnants of tonsillar crypts which now enter into the new palatal structure have a pathological importance. Particles of food and infectious materials find their

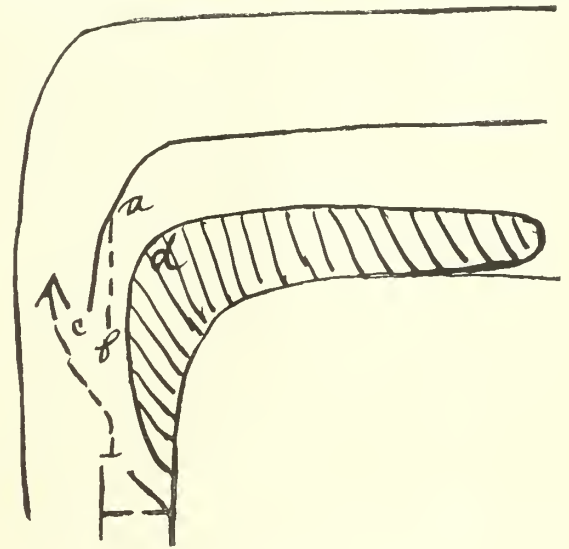


Fig. 1.

way easily into these irregularities, and the patient is, in fact, subject to infections in this region.

The speaker then drew a hypothetical case: If the palate in the accompanying illustration had stopped at *a*, the funneling into the naso-pharynx would have been lessened and the levator palati muscles would take hold more effectively. The palate, *a to c*, would, however, have less tendency to funneling. Training should aim especially to reduce the distance, *a to d*, by causing the tongue to be habitually held lower on phonation.

CASE OF INJURED PALATE WITH STAMMERING.

The second patient, E. M., a boy aged ten years, presented certain questions having reference, on the one hand, to an injured soft palate, and on the other, to difficulty in nasal breathing with consequent rhinolalia clausa, and also to stammering. There is no important history in the case until at six years of age he began to stammer. Shortly after this an operation was done on the throat, resulting, the mother states, in reducing the size of the tonsils. The mother

says that two years later (that is, two years ago) the throat was operated on again, this time for adenoids. She says that two unsuccessful operations were done without an anesthetic, and then a few days later a third one with general anesthesia. The stammering was not influenced by these operations. He is under treatment now in the Chicago public schools for his stammering and his instructor, Miss Powers, who brings him to Dr. Kenyon, states that he is not responding well to training treatment. He breathes much of the time with his mouth open and when the mouth is closed he has a naso-pharyngeal or nasal noise indicating obstruction, and is usually restless at night. The ears seem not to be involved at present. Examination shows the following: On each side the remnant of the tonsil and both anterior and posterior pillars appear to be adherent into one agglutinated mass. The palate is firmly bound down below, and the distance of the lower border to the posterior wall is not shortened on phonation, although the levator palati take hold well above. The uvula is absent; a heavy linear scar passes horizontally in the soft palate for an inch on the left side near the lower border, and the lower part of the palate seems drawn over towards the left side. The distance from the immobile lower part of the palate to the posterior wall of the pharynx is about one-half inch. When examined, rhinolalia aperta was absent. Finger examination of the naso-pharynx shows adenoids to be present sufficient to interfere decidedly with breathing. The nose shows chronic vaso-motor swelling of moderate degree.

The first question to be considered had reference to the obtaining of normal breathing by removal of the adenoids. If the adenoids were to be removed, the patient's voice would probably become markedly nasal, exactly as the voice of the operated cleft palate patient is nasal. The adenoids serve for voice purposes the part of the injured palate. The speaker, therefore, advised against operation for adenoids at this time, but should advise conservative nasal cauterization, which he hoped might do away with acuteness of the difficulty in breathing. If this failed, he should advise removal of small bits of the adenoids, working through the nose with a nasal adenoid forcep, guided by the finger in the naso-pharynx. The possibility of operation on the soft palate to obtain movement in the lower part would be considered. If all of this worked out successfully, the patient would always be free from an open nasal voice; in any case, correct voice habits would have been thoroughly established before the nasalling had begun, and thus its effects mitigated.

Concerning the dependence of stammering upon the condition of the palate or the nasal occlusion: Stammering is dependent fundamentally on psychologic causes. Only where local conditions are capable of producing or increasing these mental disturbances can such local conditions affect the disorder. That adenoids may do so, he is convinced. That such an immobile palate might do so by interfering to a cer-

tain degree with the confidence of the patient in the handling of his voice is conceivable. But in view of the distinctly secondary influence of the adenoids and of the immobile palate on the stammering, and in view of the statements above with reference to rhinolalia aperta, the treatment of the stammering should be carried on with unusual care, without local operative measures upon the throat at this time.

DISCUSSION.

DR. CHARLES M. ROBERTSON said that a couple of years ago Dr. Beck showed a case of a lady patient in whom he had injected paraffin to build up the posterior wall, and he also had done that in a case. The speech in the first case exhibited by Dr. Kenyon could perhaps be improved considerably if the walls were built up, so that the palate could meet the lump made by the paraffin, especially in the *U* sounds, in which the palate should strike the pharyngeal wall. The only difficulty in introducing paraffin is to get it to stick. Nearly all of the cases operated on for cleft palate have an inelastic soft palate resulting. If the paraffin slips, you can wait a little while and do it over again, doing half the pharynx at a time, and using the paraffin cold. All you have to look out for is to keep it from going up too high into the naso-pharynx.

In the second case, Dr. Robertson could not understand how Dr. Kenyon was going to improve the child's speech by leaving the adenoids. He thought Dr. Kenyon was counting too much on the adenoid as a foreign body, because it probably would disappear in a couple of years. The child was just reaching his adolescent period, when the adenoid should atrophy.

DR. JOSEPH C. BECK advised that there are better methods than paraffin in his work. Since using it in the patient referred to by Dr. Robertson, he had come to this conclusion. While improved temporarily, the paraffin sagged, and the nasal tone returned. He had operated on a second patient, and instead of using the muscles of the palato-pharyngeus, the pillars, so to speak, he lengthened the palate, according to Gussenbauer's method, first described in 1886, by severing the soft palate from the hard, taking a thin ridge of palatal bone, making the incision transversely and then uniting longitudinally. Some tension incisions are necessary laterally. That is a far better method than the proposition shown here in the case presented.

DR. MACLAY asked how much was chiselled away.

DR. BECK replied just the edge to get support for the soft palate, so that it would not drop.

DR. ROBERT SONNENSCHN said that Eckstein, of Berlin, used paraffin, in such cases as those reported. As a matter of fact, if the paraffin is used cold, as suggested by Dr. Robertson, you have to use a soft paraffin, which is liable to be displaced in the tissues, whereas if the hard paraffin of Eckstein were used, the substance would remain *in situ*.

DR. BECK said that the paraffin he used was Eckstein's paraffin.

DR. KENYON, in answering Dr. Robertson, said that if the adenoids remained in the boy shown, the speech habits would be developed correctly, but if they were taken out speech would be incorrectly developed. He did not think of using paraffin, because by this method the speech would be made too excellent.

HERPES ZOSTER OTICUS, WITH FACIAL PARALYSIS.

Dr. Joseph C. Beck showed a case which he had treated several years ago for peritonsillar abscess, which reappeared at various times. The patient developed a pain in the region of the forehead and along the ear, which kept him awake for several hours of the night, stopping exactly at four o'clock in the morning. Then he developed a slight attack of tonsillitis. The following day he had a similar condition of pain, at precisely the same hour, and

stopping at the same hour. On examination, nothing was found about the throat; nothing wrong with the ear or teeth. Closer examination showed a little red spot in the floor of the auditory meatus, externally, which the speaker thought was due to a slight trauma. He told the patient to return the next day, but two or three hours later he called him over the 'phone and asked him to come and see him, that the water would run out of his mouth when he drank. As soon as Dr. Beck saw the patient he recognized that he had a complete facial paralysis. The next morning he had the beginning of a typical herpes zoster oticus. The next day the whole ear was swollen. This was supposed to be an inflammatory condition. The diagnosis is not at all difficult. One thing he wished the members would speak about in discussion was the etiology. The patient would always have a peritonsillar abscess when he had these symptoms of throat trouble, but with this attack he did not have the peritonsillar abscess. Was this peritonsillar abscess possibly an etiological factor in most of the cases of facial paralysis of the idiopathic—although not stated? The prognosis in all reported cases has been excellent. This patient had also auditory nerve symptoms. He had slight dizziness, which persisted. The treatment consisted of galvanism and tonic treatment. The patient was recovering function and reacting very nicely to the treatment.

Case 2. The next case was one of a young lady, who was referred to the speaker three weeks before by a doctor in Rochester, N. Y., with a history of having had a great number of nasal operations performed—the patient said twenty-five—for headache and profuse nasal discharge. This discharge is of a mucous character, with considerable fibrin pus. Culture shows pneumococci. In spite of treatment, it continued. The antrum was punctured, washed out, and a cast came through the antral opening, which was perfectly round in shape. There was no pus—just a fibrinous exudate. The principal symptom is intense headache. There is a drawing-back of the head. Vaccines have not helped at all, and, in fact, no treatment seems to be of avail. Consultation with neurologists confirmed Dr. Beck in his opinion, but he would not say anything definite about that until he had had Dr. Grinker's opinion in discussion regarding the diagnosis. Personally, he could say nothing about the etiology of the case. The patient is unable to breathe through the nose, and cannot blow the nose—still there is a space between the palate and the posterior wall of the pharynx, and the nares are patent.

Dr. O. J. Stein inquired whether the discharge continued while the patient was asleep, to which Dr. Beck replied that it was less during sleep. Bromides did not seem to affect the headache at all. The x-ray picture of her sinuses showed them to be affected, either post-operative or by the process.

Case 3. The next patient was one of typical Froehlich's syndrome of hypopituitarism, enlargement of the anterior lobe of the hypophysis. The patient had the cardinal symptoms of loss of the hair on the

body and excessive fat over the body. Sexual function was lost. There was complete blindness of the right eye, and half blindness or lateral hemianopsia in the left eye. There was no headache, and no pain. The case had been gone over thoroughly from every point, and the diagnosis was not difficult. The reason for showing the patient was to speak of the operation, which had been described by him on previous occasions, and performed quite a number of times on the cadaver. By this method the hypophysis was reached through the antrum following the Jansen method of opening the sphenoid by way of the antrum, through the posterior ethmoid and sphenoid, which is very easy in the normal case, where infection is not present. The sella then can be reached very easily. (Demonstration of two heads in which this operation had been performed.) The patient shown was operated upon three weeks ago under scopolamin-morphin anesthesia. He was given a few whiffs of ether when chiselling into the bone. The operation was perfectly easy, and its principal advantage was the fact that the operator could see the structures he was going through. (Dr. Beck then showed illustrations of the different steps of the operation.) The x-ray in this case showed a very large sella turcica, and the stereoscopic picture was particularly valuable. The patient experienced very severe pain after the operation, of a neuralgic character, which necessitated keeping him under opiates. The enlargement of the gland was due to a cyst.

The point for consideration was: It was a cyst—will it recur? If so, there is a possibility of it causing pressure symptoms. The reason for operation was to conserve the little vision remaining.

Case 4. The next patient, a young girl, was one of a family of otosclerotics. Her principal complaint was severe pain in the front of the head and along the neck, with gradual development of symptoms of left-sided paralysis of the larynx, tongue, palate and shoulder—that is, of the ninth, tenth, eleventh and twelfth nerves. Besides that, one portion of the trifacial was also affected. She gave a history of having had tubercular glands when very young. The x-ray showed a calcareous gland in the neck. There is also a spontaneous nystagmus to both sides, slightly rotary. The case was diagnosed by one neurologist as a multiple sclerosis. The speaker made a diagnosis of pressure on these nerves from this latent tuberculosis, which diagnosis was concurred in by another neurologist. Canfield, who saw the case, said it was an intracranial proposition. Operation was performed by the speaker, when he dissected the nerves, and surrounded them with Cargile membrane. She is recovering the function of the tongue and the atrophy is disappearing. The larynx is beginning to move. The pains have disappeared; she is able to move the shoulder again, and the palate is also markedly improving. It was a case of pressure on the nerves by an old calcareous tuberculosis, lit up by a fresh attack. Reaction to tuberculin was absolutely negative a number of times.

DISCUSSION.

DR. JULIUS GRINKER, by invitation, said, with reference to the case of herpes zoster, that the explanation of its causation by a peritonsillar abscess because it began in the same way as the peritonsillar abscess appeared to him somewhat far-fetched. Since Hunt's masterly description of this type of zoster we know of its existence as one kind of zoster, but not as having a special etiology. To say that a patient develops an otitic zoster, although entitled to a peritonsillar abscess, would be equivalent to a belief in some sort of compensatory function of zoster—which is improbable.

Dr. Beck's second case, the girl with the profuse mucous discharge from the nose, he believes to be one of hysteria. Instead of the mucous colitis of hysteria and neurasthenia—a well-known phenomenon—we have the unusual symptom of hysterical rhinorrhea.

Referring to the case with multiple nerve lesions, the relief obtained by Dr. Beck's operation of removal of glands in the immediate vicinity of the nerves, proves his diagnosis of pressure neuritis, and admonishes one always to search for some tangible and removable cause in peripheral neuritis, especially if confined to one side.

The case of hypophyseal disease of the Froehlich type was interesting, from the diagnostic viewpoint, but more so because Dr. Beck had discovered a new route to the hypophyseal region. Though easily reached by Dr. Beck—being at home in those parts—he thought there was quite a distance to travel. This route in certain cases seemed to him preferable to the one followed by McArthur and Frazier, whose operation by comparison must be considered formidable and not devoid of the usual dangers accompanying cranial operations.

DR. R. H. BROWN, regarding the second case, asked as to whether, in examining the nose, there was any marked turgescence present. These hysterical cases remind one very much of cases of diabetes insipidus, where there is a perfect flood of blood to a certain part (which did not show locally on examination), and he was interested in knowing whether, in a part like the nose, which could be examined, this local congestion showed.

DR. H. W. LOEB, of St. Louis, Mo., spoke about the case of paralysis, which he had had the opportunity to see before, during and after operation. Dr. Beck said that she had a nystagmus to both sides, but he had a distinct recollection that the nystagmus was to the opposite side. It was on that basis that Dr. Canfield thought that the case was intracranial, and for that reason the speaker agreed with him. Dr. Beck had insisted on the condition being one of pressure in that region, and the speaker simply rose to state that Dr. Beck's view was correct, and the rest of the men who saw the case were wrong.

DR. CHARLES M. ROBERTSON referred to the hyperpituitary case. If this had been a tumor of the hypophysis, the young man would not have had the happy result seen at the present time. Dr. Robertson had reported a case to the Society two or three years ago—when Dr. Pierce had a case—upon whom he operated by this route. It is a very simple operation, and the only thing to contend with is the speno-maxillary artery. Dr. Robertson's was a cyst case, and recurred after the pituitary body was relieved of the pressure, but the cyst came down into the nose and was removed with the dura until the healthy dura was found by section afterwards. The man is still well, showing that these cases do not get well of cysts under the pituitary body. Cases of tumor he would pass on to the surgeon, but in cysts he thinks that they belong to the field of the laryngologist and otologist, and this method is the shortest, safest and easiest route to the pituitary.

DR. BECK, in closing the discussion, wanted to take issue with Dr. Grinker. We do not have to have an abscess in order to have an infection.

Regarding the little girl, he showed her in order to have some of the members and guests express their opinions as to the question of hysteria. That was his diagnosis. The similarity between a mucous colitis or an excessive quantity of urine in a hysterical patient and the condition present in the young girl shown was the very point he had wished to have brought out.

Answering Dr. Brown's question, there was no turgescence present in this case. This brought him to a point made by Dr. Grinker as to the posterior lobe. He believes it is considered that diabetes insipidus is the symptom present when the posterior and middle lobes are involved, and that the anterior lobe involvement only produces the Froehlich syndrome.

DR. GRINKER said that involvement of the anterior lobe produces acromegaly.

DR. BECK said Dr. Loeb was wrong in the point of unilateral nystagmus. The patient now has bilateral nystagmus. Canfield said it was intracranial because it was slightly rotary.

Regarding the young man, it was, of course, a case of either tumor or cyst—it made no difference. He would rather it had been a tumor, because a cyst has more likelihood of recurring than a tumor.

DEKALB COUNTY.

The DeKalb County Medical Society met in regular session in Sycamore on November 6, 1914. The constitution of the state and national medical societies was adopted, with the exception that the time of meeting was to be quarterly instead of monthly.

The following officers were elected:

President, G. S. Culver, M. D., Sandwich; vice-president, L. E. Barton, M. D., Malta; secretary and treasurer, J. B. Hagey, M. D., DeKalb; board of censors, Drs. J. M. Everett, DeKalb, C. B. Brown, Sycamore, W. A. Thompson, Sandwich; delegate, C. B. Brown, M. D., Sycamore; alternate delegate, J. A. Badgley, M. D., DeKalb.

DR. I. S. EVANS of Sycamore presented a paper on "Ulcers of the Stomach and Duodenum." A case of cured exophthalmic goitre was shown by Dr. L. E. Barton of Malta. Specimen of removed mycosa of the tonsils was shown by Drs. Ralph and Clifford Smith of DeKalb.

J. B. HAGEY, M. D.,
Secretary.

EDGAR COUNTY.

The Edgar County Medical Society met in regular session in the Carnegie Library.

In the absence of the president, Dr. G. H. Hunt acted as president pro tem. The minutes of the last regular meeting were read and approved.

The report of the proceedings at the annual dinner to members and members' wives, which occurred at the Paris Hotel on October 8, was read and approved. The program committee was instructed to investigate the feasibility of introducing a social program to be participated in by members and members' wives on the evenings of the regular quarterly meetings of the society, the object being to bring about a closer relationship throughout the medical profession of the county. It was thought that this might be assisted if the families of the physicians could be brought together at regular intervals, and to attain this the society would, if practical, adopt a scientific session in the afternoon and a social session in the evening.

DR. E. O. LAUGHLIN of Paris presented a paper upon the subject of "Indigestion," this being the third paper in series on the diseases of the intestinal tract. The paper was well received and thoroughly discussed.

DR. B. G. R. WILLIAMS presented a very interesting

and instructive paper on the subject of "Colipyelitis." Dr. Williams has, in the last six months, had an exceptional laboratory experience in the investigation of this disease, and presented his findings and conclusions very fully. The paper was very favorably received and its discussion lasted till the hour of adjournment. The secretary was instructed to forward both papers to the ILLINOIS MEDICAL JOURNAL for publication.

The Society adjourned to meet upon the third Wednesday in December.

GEORGE H. HUNT,
Secretary.

WABASH COUNTY.

The Wabash County Medical Society met on Nov. 17, 1914. President J. J. McIntosh called the meeting to order. Minutes of the previous meeting were read and approved. There were present Drs. S. W. Schnee, E. A. Buckholz, P. G. Manley, J. J. McIntosh, W. B. Baird, J. B. Maxwell of Mt. Carmel, Ill., Dr. Fred Brines, Lancaster, Dr. C. E. Gilliatt, Allendale, and Geo. Wilson, a medical student; also Dr. George Thomas Palmer of Springfield, who upon special invitation was present and read a paper upon "Tuberculosis; Its Diagnosis and Treatment," which elicited a general and favorable discussion.

Dr. Palmer also spoke at the courthouse under the auspices of the Wabash County Medical Society and the Women's Club at which was present a most unusually intelligent audience.

The following officers were elected for the ensuing year: Drs. P. G. Manley, president; W. H. Robinson, vice-president; J. B. Maxwell, secretary; W. B. Baird, treasurer; E. A. Buckholz, censor. Dr. J. J. McIntosh delegate to state medical society, and C. E. Gilliatt, alternate.

J. B. MAXWELL, Secretary.

Personals

Dr. E. J. Farrell has removed his office to 502 Trust Building, Rockford.

Dr. and Mrs. William W. Meloy and son, Chicago, have returned from Europe.

Dr. John M. Kara and Duro Guca, Chicago, have sailed for Europe to enter the Red Cross work with Servia.

Dr. Anthony G. Wittman, of the staff of the Elgin State Hospital, has been made medical director of the new Alton State Hospital.

Dr. Grace L. Meigs, Chicago, has been appointed by Miss Julia Lathrop, chief of the children's bureau of the U. S. Department of Labor, as expert on sanitation on the staff of that bureau, and will act in a general advisory capacity to the bureau in matters of child health and hygiene.

Dr. Caroline Hedger, Chicago, has sailed for Holland with a large supply of vaccine, both for smallpox and typhoid fever. Her trip is financed by the Chicago Woman's Club.

News Notes

—Health Commissioner George B. Young announced November 13 that one of the Municipal Bath Houses will soon be turned into a Municipal Laundry for the benefit of the women in the tenement districts.

—Dr. I. W. Hodgins, erstwhile king of Chicago quacks, was recently convicted of operating a confidence game in Judge O'Connor's court. He is the name-sake of old Isaac Walton of piscatorial fame but he could give the original, pointers on landing "suckers."

—The dispensary established in Quincy by the Adams County Tuberculosis Association was opened for the inspection of the public November 7, and received patients on the following day. The dispensary will be open on Mondays, Wednesdays and Fridays at hours to accommodate all classes of people.

—Dr. Henry J. Gahagan, superintendent of the Elgin State Hospital, has asked the State Board of Administration for a tuberculosis hospital at an estimated cost of \$50,000, a building for incurably insane women at an estimated cost of \$35,000, an extension to the dining-room of the institution, and an addition of 500 acres of land to the hospital farm.

—At a largely attended dinner at the Sherman Hotel, Chicago, November 9, the Chicago Pathological Society presented Dr. George Howitt Weaver with an appropriate testimonial of its appreciation of his efficient services as secretary of the society for twenty consecutive years. Short addresses were made by Dr. J. B. Herrick, Dr. W. E. Quine and Dr. L. Hektoen; Dr. Weaver responded.

—The recently completed Mother's Aid Pavilion of the Chicago Lying-In Hospital was opened for inspection October 30, when a reception was tendered by the directors to nurses and physicians of Chicago. The pavilion is a four-story brick building constructed at a cost of \$85,000 and has accommodations for thirty patients, one-third of whom will be charity cases. The hospital was opened to the public November 3.

—The Wesley Memorial Hospital of Chicago has established five fellowships for the solution of clinical scientific problems and it hopes to thus correlate the departments of clinical and scientific medicine. The scholarships are open to any graduate in medicine and the work will be carried on under a joint board from the Wesley Hospital and the laboratory department of the Northwestern University Medical School.

—Officers elect, by the Southern Illinois Medical Association for the ensuing year: president, Dr. W. E. Lingle, Cobden; first vice-president, Dr. T. H. D. Griffiths, Springfield; second vice-president, Dr. A. J. Butner, Harrisburg; secretary, Dr. A. B. Capel, Shawneetown; assistant secretary, Dr. Andy Hall, Mt. Vernon; treasurer, Dr. J. W. Armstrong, Centralia. The next meeting of the Association will be held in Harrisburg, November 4 and 5, 1915.

—Members of the Chicago Medical Society, speaking before the Association of Commerce, November 4, appealed for enlarged hospital accommodations for cases of contagious diseases. It is said that there are more than 40,000 cases in the city every year and that only about 10 per cent of the number are sent to hospitals; also that the lack of hospital facilities causes failure to report many cases of contagious diseases to the health commissioner for quarantine.

—"The mills of the gods grind slowly but they grind exceeding fine." At last the United States Public Health Service has published the report of the board of officers appointed in March, 1913, to investigate the Friedmann cure for tuberculosis. The conclusions are as follows: "The claim of Dr. F. F. Friedmann to have originated a specific cure for tuberculosis is not established by our investigation.

"The claim of Dr. F. F. Friedmann that the inoculation of persons and animals with his or-

ganism is without harmful possibilities is disproved." Sic transit gloria fakeri.

—We are in receipt of Bulletin No. 1, of the Dispensary Department, Municipal Tuberculosis Sanitarium of Chicago containing five essays on different aspects of the tuberculosis problem presented by different nurses at the monthly meetings of the "Study Circle." The Bulletin contains a foreword and "Notes on Tuberculin for Nurses" by Dr. T. B. Sachs.

The subjects of the essays and writers are as follows: "Historical Notes on Tuberculosis," Rosalind Mackay, R. N. "Visiting Tuberculosis Nursing in Various Cities of the United States," Anna M. Drake, R. N. "Provisions for Outdoor Sleeping," May MacConachie, R. N. "Some Points in the Nursing Care of the Advanced Consumptive," Elsa Lund, R. N. "Open Air Schools in this Country and Abroad," Frances M. Heinrich, R. N.

This little publication shows evidence of wide reading on the part of the nurses and is an admirable plan on the part of the management of the institution for building up an expert corps of attendants.

—At the meeting of the Illinois State Association for the Prevention of Tuberculosis at La Salle, October 28, the attitude of Governor Dunne in placing the embargo against the importation of tuberculous cattle in Illinois was commended and the association pledged itself to the repeal of the Shurtleff law, which deprives cities of the right to require the tuberculin testing of dairy cattle. The following officers were elected: president, Dr. George T. Palmer, Springfield; vice-president, Dr. Charles W. Lillie, East St. Louis, and Dr. Samuel Dodds, Cairo; secretary, James Minnick, Chicago, reelected.

—The staff of Michael Reese Hospital, Chicago, gave a complimentary dinner at the Standard Club, November 20, to the staff and social welfare workers of the West Side Dispensary. The guest of honor was Dr. R. C. Cabot of Harvard Medical School and the Massachusetts General Hospital who gave an address on the origin and development of social welfare work in connection with hospitals and dispensaries. This modern development which is now an essential part of the routine in nearly 150 institutions

throughout the country, owes its origin to the observation of Dr. Cabot that dispensary patients secured only temporary relief under the old methods and were constantly returning for "medicine." He related a number of cases which had cost the hospital large sums for lack of investigation of the patients' home conditions. One particularly flagrant example was a family consisting of parents and nine children who had been treated over a period of several years, one at a time, for scabies. On investigation it was learned that the family had cost the hospital over \$200. By rounding up the whole family on Sunday, a nurse was able to treat them all and secure permanent "cures."

So greatly was Dr. Cabot impressed by the necessity of more than simply handing out a bottle of medicine in dispensaries, that he paid the salary of the first social welfare worker out of his own pocket about twelve years ago. At first the innovation was barely tolerated by the hospital management, but with the development of the system it has become indispensable. The Massachusetts General Hospital Out Patient Department now employs fifteen paid workers and has forty-five volunteers, enabling it to vastly increase the benefits it confers on its clientele.

—The following is the announced program of the North Central Illinois Medical Association at the meeting of December 1-2 at Wenona, Illinois. "Diseased Conditions Within the Eye"—Alonzo B. Middleton, M. D., Pontiac.

Discussion: C. A. E. Lasage, M. D., Dixon; H. O. Evenson, M. D., Ottawa.

"The Management and Treatment of Morphine Addiction"—Charles L. Hamilton, M. D., Dwight.

Discussion: R. E. Gordon, M. D., El Paso; E. H. Fitzpatrick, M. D., Pontiac.

"Uterine Hemorrhage with Lantern Demonstration of Pathology"—Jeremiah H. Stealy, M. D., Freeport.

Discussion: J. F. Keefer, M. D., Sterling; C. W. McPherson, M. D., Hazelhurst.

"Theory and Practice of the Abderhalden Method"—Bayard Holmes, M. D., Chicago.

Discussion: W. W. Greaves, M. D., La Salle; Edward Hattan, M. D., Peru.

"Vascular Tumors: Their Character and Treatment"—Francis Reder, M. D., St. Louis, Mo.

Discussion: E. P. Cook, M. D., Mendota; E. W. Weis, M. D., Ottawa.

"Vaccine Therapy"—Fred. C. Zapffe, M. D., Chicago.

Discussion: H. A. Millard, M. D., Minonk; L. J. Quillin, M. D., Streator.

"Fracture of the Thigh Treated by Clock-Spring Plates"—Carl E. Black, M. D., Jacksonville.

Discussion: P. M. Burke, M. D., La Salle; J. D. Scouller, Jr., M. D., Pontiac.

"Surgery of the Bile Tracts"—Clifford U. Collins, M. D., Peoria.

Discussion: H. M. Orr, M. D., La Salle; Roy Sexton, M. D., Streator.

"Treatment of Pneumococcic Pneumonia"—Frank W. Nickel, M. D., Eureka.

Discussion: J. W. Pettit, M. D., Ottawa; M. A. Nix, M. D., Princeton.

"Diagnosis and Treatment of Ectopic Pregnancy"—Edward S. Murphy, M. D., Dixon.

Discussion: E. E. Perisho, M. D., Streator; G. T. Love, M. D., Dana.

Officers of the association, 1914: President, George A. Dicus, M. D., Streator; first vice-president, Charles D. Thomas, M. D., Peoria; second vice-president, James A. Marshall, M. D., Pontiac; secretary and treasurer, Wm. O. Ensign, M. D., Rutland.

Public Health

SMALL-POX VS. MEASLES.

There is no harm in any one having a wholesome fear of disease. As a matter of fact fear very often plays an important part in protecting and conserving community health. But because people are very much afraid of some diseases, and almost indifferent about others, almost every community has a great deal of sickness that might be avoided.

For example, everybody dreads small-pox and because of their fear of this disease people will submit to vaccination in order to avoid having it. Let us say then that fear, of the intelligent, wholesome kind, if you please, has been a most important factor in helping health authorities to bring small-pox under a large measure of control; so extensive, in fact, that small-pox epidemics are now few and far between. Last year, in spite of the fact that Chicago has a pretty large unvaccinated population, there was but one death from small-pox; but it had during that year 288 deaths from measles.

The trouble is that parents are not afraid of measles, in spite of the fact that it killed nearly 300 children in a single year. Much the same attitude is taken as to most of the communicable diseases, that is, that while they are not desirable to have, yet it is the inevitable lot of children to have them and therefore there is not much use in being careful to avoid them.

Also, for 1913, there were 101 deaths caused by whooping cough, another disease that is lightly regarded by many people, whose position is that they rather want their children to have such diseases as measles, mumps and whooping cough as soon as possible and thus be over with them. This is a grievous mistake, especially in the face of the fact that for the first 8 months of this year whooping cough had 202 deaths to its credit.

But this somewhat startling death record due to diseases that are particularly regarded as "not at all dangerous" by most people, is by no means the whole story. For, while there were in 1913, 288 deaths due to measles, there were 15,132 cases, 14,844 of which recovered. But it is well known that measles often leaves effects that work serious and permanent harm. Here is what the Department leaflet has to say about measles: "It kills by causing inflammation of the air passages and lungs. It maims by causing diseases of the eyes and ears, in the latter sometimes causing death by an extension to the membrane covering the brain.

"It is a crime for parents to purposely expose a child to measles. Keep the child from taking measles until he is grown up, and there will be few deaths from this disease."

Children who seem to be taking a severe cold, accompanied by much sneezing, should not be sent to school. Measles is believed to be most contagious during the first four days of the attack. The danger is much less after the fever has subsided. If only parents throughout the city will co-operate with the Department of Health by keeping a careful watch as to the state of their children's health, and in keeping even a slightly ailing child at home until it is known to be free from contagion of any kind, material reductions can be made in both the case and death rates of these often so-called harmless diseases.

Remember that there would be few deaths from measles if every child could be kept from taking the disease until after five years of age.—*From the Bulletin Chicago Department of Health.*

Marriages

WILLIAM FREDERICK BECKER, M. D., to Mrs. Becker, both of Chicago, October 27.

FREDERICK WILLARD BRIAN, M. D., Bloomington, Ill., to Miss Virginia Hillabold of Syracuse, Ind., October 15.

MORRIS BRAUDE, M. D., Chicago, to Miss Dorothy Rosenstein of Mishawaka, Ind., recently.

ARTHUR MCCAREY, M. D., Chicago, to Miss Arleen Winnifred Joannes of Green Bay, Wis., October 1.

FREDERICK ELMER MUNCH, M. D., Chicago, to Miss Alma B. Kundert of Racine, Wis., at Martintown, Wis., October 28.

GROVER CLEVELAND OTRICH, M. D., Belleville, Ill., to Mrs. Margaret Zimmerman of Kansas City, Mo., at Chicago, October 14.

ISAAC DONALDSON RAWLINGS, M. D., Chicago, to Miss Eleanor Florence Cupp of Stevensville, Mich., October 17.

BERT GEORGE WILCOX, M. D., to Miss Lillian Mine Bell, both of Joliet, Ill., October 14.

CHARLES FRANCIS YERGER, M. D., to Miss Helen Zegar, both of Chicago, October 17.

Deaths

DAVID C. HARMISON, M. D. College of Physicians and Surgeons, Keokuk, Iowa, 1878; a veteran of the Civil war; died at his home in Havana, Ill., October 19, aged 69.

JAMES JEROME HASSETT, M. D. Rush Medical College, Chicago, 1890; a member of the Illinois State Medical Society and the Illinois State Board of Health; died at his home in McLeansboro, Ill., October 28.

VEDA C. CHIPPERFIELD MURPHY, M. D. College of Physicians and Surgeons, Chicago, 1904; a Fellow of the American Medical Association and one of the most prominent woman physicians of Fulton County, Ill.; died at her home in Cuba, Ill., October 13, from carcinoma, aged 40.

JOHN WHITING NILES, M. D. New York University, New York City, 1876; for many years a practitioner of Chicago; died at his home in that city, October 17, from cerebral hemorrhage, aged 62.

AMOS JESSE NEWELL, M. D. Rush Medical College, 1892; formerly a member of the American Medical Association; of West Pullman, Chicago; died in the Meadville, Pa., City Hospital, about October 21, aged 59.

STANLEY MICHAEL PIOTROWSKI, M. D. Chicago College of Medicine and Surgery, 1914; died at his home in Chicago, September 18, from diabetes, aged 27.

ABRAM L. SMALL, M. D. Rush Medical College, 1863; a pioneer practitioner of Kankakee County, Ill.; died at his home in Kankakee, October 6, aged 84.

SAMUEL HAMILTON VREDENBURG (license, years of practice, Illinois, 1878) for nearly sixty years a practitioner of Danville, Ill.; died at his home, September 24, aged 94.

ALONZO M. W. WESTFALL (license, years of practice, Illinois, 1877) a practitioner of Prairie City, Ill., for forty-four years; died at his home September 21, from acute dilatation of the heart, aged 70.

NEW AND NON-OFFICIAL REMEDIES.

Since publication of new and non-official remedies, 1914, and of the supplement to new and non-official remedies, 1914 (July 1, 1914), the following articles not previously described have been accepted for inclusion with "N. N. R.":

Abbott Alkaloidal Co.: Strepto-Bacterin (Human), packages of 6 ampoules, each containing 100 million killed bacteria; Slee's Normal Horse Serum, vials containing 100 cc.

H. M. Alexander & Co.: Typhoid Vaccine.

Greeley Laboratories, Inc.: Acne Vaccine, packages of 6 syringes, each containing 12 million bacteria; Colon Vaccine, packages of 6 syringes, each containing 1,000 million bacteria; Pyocyaneus Vaccine, packages of 6 syringes, each containing 1,000 million bacteria; Gonococcus Vaccine, packages of 6 syringes, each containing 500 million bacteria; Pneumococcus Vaccine, packages of 6 syringes, each containing 500 million bacteria; Staphylococcus Albus Vaccine, packages of 6 syringes, each containing 1,000 million bacteria; Staphylococcus Aureus Vaccine, packages of 6 syringes, each containing 1,000 million bacteria; Streptococcus Vaccine, packages of 6 syringes, each containing 500 million bacteria; Typhoid Bacillus Vaccine, packages of 6 syringes, containing 1,000 million bacteria, packages of 6 syringes containing, respectively, 100, 200, 400, 600, 800 and 1,000 million bacteria.

Maltine Co.: Maltine Malt Soup Extract.

Memorial Institute: Diphtheria Antitoxin, 10,000 units.

H. K. Mulford Co.: Friable Tablets of Emetine Hydrochloride; Antidyseric Serum, in vials containing 50 cc.; Antipneumococcic Serum, Polyvalent, syringes containing 20 cc. and vials containing 50 cc.; Antistreptococcic Serum, Polyvalent, vials containing 50 cc.; Antistreptococcic Serum, Scarlatinal, Polyvalent, vials containing 50 cc.; Pyocyano Bacterin, packages of 4 syringes containing 50, 100, 200 and 400 million killed bacteria; Typho-Serobacterin Mulford, Immunizing, syringes containing 1,000, 2,000 and 2,000 million killed sensitized typhoid bacilli.

Pasteur Institute of St. Louis: Antirabic Vaccine.

Schiffelin & Co.: Acne Vaccine, packages of 4 syringes containing respectively 5, 10, 20 and 40 million B. acne; Antimeningococcus Serum, 30 cc. cylinder, 20 cc. vial; Colon Vaccine, 2 vial packages containing 50, 100, 200 and 400 million killed bacteria; Gonococcus Vaccine, 5 syringes containing respectively 50, 100, 200, 400 and 1,200 million killed bacteria; Scarlet Fever Treatment, packages of 4 vials containing 50, 100, 200 and 400 million killed bacteria; Typhoid Combined Vaccine (Prophylactic), vials and syringes containing three doses, 500 million killed typhoid bacilli and 250 million killed paratyphoid bacilli A and 250 million killed paratyphoid bacilli B, while the second and third dose each contain 1,000 million killed typhoid bacilli and 500 million each of killed paratyphoid bacilli A and A.

E. R. Squibb & Sons: Acne Vaccine, boxes of 4 syringes containing 25, 50, 100 and 200 million killed

bacilli, boxes of 2 syringes containing 50 and 200 million killed bacilli, boxes of 6 ampoules containing 10, 25, 50, 100, 200 and 500 million killed bacilli, with syringes, and boxes of 3 ampoules containing 50 and 200 million killed bacilli with a syringe; Bacillus Coli Communis Vaccine, boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed bacilli, also boxes of 2 syringes containing 100 and 500 million killed bacilli and boxes of 2 ampoules containing 100 and 500 million killed bacilli, with a syringe; Bacillus Pertussis Vaccine, boxes of 4 syringes containing 25, 50, 100 and 200 million killed bacilli, also boxes of 2 syringes containing 50 and 200 million killed bacilli, boxes of 6 ampoules containing 25, 50, 100, 200, 300 and 500 million killed bacilli, with a syringe and boxes of 2 ampoules containing 50 and 200 million killed bacilli, with a syringe; Diphtheria Antitoxin, syringes containing 2,000, 3,000, 4,000, 5,000, 7,500 and 10,000 units; Gonococcus Vaccine, 4 syringes containing 100, 200, 350 and 500 million killed gonococci, boxes of 2 syringes containing 100 and 500 million killed gonococci, boxes of 6 ampoules containing 50, 100, 150, 350, 500 and 1,000 million killed gonococci, with a syringe, and boxes of 2 ampoules containing 100 and 500 million killed gonococci, with a syringe; Meningococcus Vaccine, Curative, boxes of 4 syringes containing 100, 200, 400 and 500 million killed meningococci, also boxes of 2 syringes containing 100 and 500 million killed meningococci, boxes of 6 ampoules containing 100, 100, 500, 500, 1,000 and 1,000 million killed meningococci, with a syringe, and boxes of 2 ampoules containing 100 and 500 million killed meningococci, with a syringe; Meningococcus Vaccine, Immunizing, boxes of 3 syringes containing 100, 500 and 1,000 million killed meningococci; Pneumococcus Vaccine, boxes of 4 syringes containing respectively 100, 200, 400 and 500 million killed pneumococci, boxes of 2 syringes containing respectively 100 and 500 million killed pneumococci, boxes of 6 ampoules containing 100, 100, 500, 500, 1,000 and 1,000 million killed pneumococci, with a syringe, and boxes of 2 ampoules containing 100 and 500 million killed pneumococci, with a syringe; Pyocyaneus Vaccine, boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed bacilli, also in boxes of 2 syringes containing 100 and 500 million killed bacilli; Smallpox (Variola) Vaccine (Glycerinated), each dose in separate aseptic sealed glass tube, with bulb and needles, boxes of 5 and 10 tubes; Staphylo-Acne Vaccine, boxes of 4 syringes containing 100 million killed staphylococci and 25 million killed acne bacilli, 200 million killed staphylococci and 50 million killed acne bacilli, 400 million killed staphylococci and 100 million killed acne bacilli, and 500 million killed staphylococci and 200 million killed acne bacilli, boxes of 2 syringes containing 100 million killed staphylococci and 50 million killed acne bacilli and 500 million killed staphylococci and 200 million killed acne bacilli, boxes of 2 ampoules containing 100 million killed staphylococci and 50 million killed acne bacilli and 500 million killed staphylococci and 200 million killed acne bacilli, with a

syringe; *Staphylococcus Vaccine*, boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed staphylococci, also boxes of 2 syringes containing 100 and 500 million killed staphylococci, boxes containing 6 ampoules containing 100, 250, 500, 500, 1,000 and 2,000 million killed staphylococci, with a syringe, and boxes of 2 ampoules containing 100 and 500 million killed staphylococci, with a syringe; *Streptococcus Vaccine*, boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed streptococci, also boxes of 2 syringes containing 100 and 500 million killed streptococci, boxes of 2 ampoules containing 100 and 500 million killed streptococci, with a syringe; *Typhoid Vaccine, Curative*, boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed bacilli, also boxes of 2 syringes containing 100 and 500 million killed bacilli, boxes of 6 ampoules containing 200, 200, 500, 500, 1,000 and 1,000 million killed bacilli, with a syringe, and boxes of 2 ampoules containing 100 and 500 million killed bacilli, with a syringe; *Typhoid Vaccine, Immunizing*, boxes of 3 syringes containing 500, 1,000 and 1,000 million killed bacilli.

Standard Chemical Co.: Radium Bromide.

Hepco Flour.—A flour prepared from the soya bean. It is claimed that clinical trial has shown that the small percentage of carbohydrates in Hepco Flour is in the main not sugar-producing, and that it therefore is a suitable food material in cases in which carbohydrates are contraindicated, as in diabetes, amyloseous dyspepsia, etc. Hepco Flour is also sold in the form of biscuits as Hepco Dodgers and a granulated "breakfast food" as Hepco Grits. Waukesha Health Products Company, Waukesha, Wis. (Jour. A. M. A., Sept. 26, 1914, p. 1113).

Acne Vaccine.—Marketed in boxes of 4 syringes containing 25, 50, 100 and 200 million killed bacilli. Also in boxes of 2 syringes containing 50 and 200 million killed bacilli; boxes of 6 ampoules containing 10, 25, 50, 100, 200 and 500 million killed bacilli, with a syringe; and boxes of 2 ampoules containing 50 and 200 million killed bacilli, with a syringe. E. R. Squibb & Sons, New York.

Bacillus Coli Communis Vaccine.—Marketed in boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed bacilli. Also boxes of 2 syringes containing 100 and 500 million killed bacilli and boxes of 2 ampoules containing 100 and 500 million killed bacilli, with a syringe. E. R. Squibb & Sons, New York.

Bacillus Pertussis Vaccine.—Marketed in boxes of 4 syringes containing 25, 50, 100 and 200 million killed bacilli. Also boxes of 2 syringes containing 50 and 200 million killed bacilli; boxes of 6 ampoules containing 25, 50, 100, 200, 300 and 500 million killed bacilli, with a syringe; and boxes of 2 ampoules containing 50 and 200 million killed bacilli, with a syringe. E. R. Squibb & Sons, New York.

Pyocyaneus Vaccine.—Marketed in boxes of 4 syringes containing 100, 200, 500 and 1,000 million

killed bacilli. Also in boxes of 2 syringes containing 100 and 500 million killed bacilli. E. R. Squibb & Sons, New York.

Gonococcus Vaccine.—Marketed in boxes of 4 syringes containing 100, 200 and 500 million killed gonococci. Also in boxes of 2 syringes containing 100 and 500 million killed gonococci; boxes of 6 ampoules containing 50, 100, 150, 350, 500 and 1,000 million killed gonococci, with a syringe; and boxes of 2 ampoules containing 100 and 500 million killed gonococci, with a syringe. E. R. Squibb & Sons, New York. (Jour. A. M. A., Oct. 3, 1914, p. 1204.)

Meningococcus Vaccine, Immunizing.—Marketed in boxes of 3 syringes containing 100, 500 and 1,000 million killed meningococci. E. R. Squibb & Sons, New York.

Meningococcus Vaccine, Curative.—Marketed in boxes of 4 syringes containing 100, 200, 400 and 500 million killed meningococci. Also in boxes of 2 syringes containing 100 and 500 million killed meningococci; boxes of 6 ampoules containing 100, 100, 500, 500, 1,000 and 1,000 million killed meningococci, with a syringe, and boxes of 2 ampoules containing 100 and 500 million killed meningococci, with a syringe. E. R. Squibb & Sons, New York.

Pneumococcus Vaccine.—Marketed in boxes of 4 syringes containing respectively 100, 200, 400 and 500 million killed pneumococci; boxes of 2 syringes containing respectively 100 and 500 million killed pneumococci; boxes of 6 ampoules containing 100, 100, 500, 500, 1,000 and 1,000 million killed pneumococci, with a syringe, and boxes of 2 ampoules containing 100 and 500 million killed pneumococci, with a syringe. E. R. Squibb & Sons, New York.

Staphylo-Acne Vaccine.—Marketed in boxes of 4 syringes containing 100 million killed staphylococci and 25 million killed acne bacilli, 200 million killed staphylococci and 50 million acne bacilli, 400 million killed staphylococci and 100 million killed acne bacilli, and 500 million killed staphylococci and 200 million killed acne bacilli; boxes of 2 syringes containing 100 million killed staphylococci and 50 million killed acne bacilli and 500 million killed staphylococci and 200 million killed acne bacilli; boxes of 2 ampoules containing 100 million killed staphylococci and 50 million killed acne bacilli and 500 million killed staphylococci and 200 million killed acne bacilli, with a syringe. E. R. Squibb & Sons, New York.

Staphylococcus Vaccine.—Marketed in boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed staphylococci; also in boxes of 2 syringes containing 100 and 500 million killed staphylococci; boxes of 6 ampoules containing 100, 250, 500, 500, 1,000 and 2,000 million killed staphylococci, with a syringe, and boxes of 2 ampoules containing 100 and 500 million killed staphylococci, with a syringe. E. R. Squibb & Sons, New York.

Streptococcus Vaccine.—Marketed in boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed streptococci; also in boxes of 2 syringes containing 100 and 500 million killed streptococci; boxes of 2 ampoules containing 100 and 500 million killed streptococci, with a syringe. E. R. Squibb & Sons, New York.

Typhoid Vaccine, Curative.—Marketed in boxes of 4 syringes containing 100, 200, 500 and 1,000 million killed bacilli. Also in boxes of 2 syringes containing 100 and 500 million killed bacilli; boxes of 6 ampoules containing 100, 100, 500, 500, 1,000 and 1,000 million killed bacilli, with a syringe and boxes of 2 ampoules containing 100 and 500 million killed bacilli, with a syringe. E. R. Squibb & Sons, New York.

Typhoid Vaccine, Immunizing.—Marketed in boxes of 3 syringes containing 500, 1,000 and 1,000 million killed bacilli. E. R. Squibb & Sons, New York.

Smallpox (Variola) Vaccine (Glycerinated)—Each dose in separate aseptic sealed glass tube, with bulb and needles. Boxes of 5 and boxes of 10 tubes. E. R. Squibb & Sons, New York.

Diphtheria Antitoxin.—Curative doses, marketed in syringes containing 2,000, 3,000, 4,000, 5,000, 7,500 and 10,000 units. E. R. Squibb & Sons, New York.

Antidysenteric Serum.—Marketed in vials containing 50 cc. H. K. Mulford Co., Philadelphia, Pa.

Antipneumococcic Serum, Polyvalent.—Marketed in syringes containing 20 cc. Also marketed in vials containing 50 cc. H. K. Mulford Co., Philadelphia, Pa.

Antistreptococcic Serum, Polyvalent.—Marketed in vials containing 50 cc. H. K. Mulford Co., Philadelphia, Pa.

Antistreptococcic Serum, Scarlatinal, Polyvalent.—Marketed in vials containing 50 cc. H. K. Mulford Co., Philadelphia, Pa.

Typho-Serobacterin, Mulford, Immunizing.—Each package contains 3 syringes of Typho-Serobacterin graduated as follows: First dose, 1,000 million killed sensitized typhoid bacilli; second dose, 2,000 million killed sensitized typhoid bacilli; third dose, 2,000 million killed sensitized typhoid bacilli. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., Oct. 10, 1914, p. 1296).

Cymarin.—A neutral, non-glucosidal substance obtained from *apocynum cannabinum* and *apocynum androsemifolium*. Cymarin resembles amorphous strophanthin in its actions and is about equal to it in activity. It is more active when injected intravenously or intramuscularly than when given orally. Its uses are much like those of digitalis, but it is best suited in the form of Cymarin Tablets, 1/200 gr. and Ampoules Cymarin Solution containing 1/60 gr. cymarin. The Bayer Co., New York. (Jour. A. M. A., Oct. 17, 1914, p. 1393).

Maltine Malt Soup Extract.—Maltine containing potassium carbonate, 1.1 gm. to each 100 gm. and alcohol, 3.88 per cent. Maltine Co., Brooklyn, N. Y. (Jour. A. M. A., Oct. 24, 1914, p. 1479.)

Acne Vaccine.—Marketed in packages of six syringes, each containing 12 million bacteria. Greeley Laboratories, Inc., Boston.

Acne Vaccine.—Marketed in packages of four syringes containing, respectively, 5, 10, 20 and 40 million killed acne bacilli. Schieffelin & Co., New York.

Colon Vaccine.—Marketed in packages of six syringes, each containing 1,000 million bacteria. Greeley Laboratories, Inc., Boston.

Colon Vaccine.—Marketed in packages of two vials, each containing, respectively, 50, 100, 200 and 400 million killed bacteria. Schieffelin & Co., New York.

Pyocyanus Vaccine.—Marketed in packages of six syringes, each containing 1,000 million bacteria. Greeley Laboratories, Inc., Boston.

Pyocyan-Bacterin.—Marketed in packages of four syringes containing, respectively, 50, 100, 200 and 400 million killed bacteria. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., Oct. 24, 1914, p. 1479.)

Antimeningococcus Serum (Antimeningitis Serum).—Marketed in one aseptic glass cylinder containing 30 cc. with special sterile needle and stylet. Also in one 20 cc. vial. Schieffelin & Co., New York.

Gonococcus Vaccine.—Marketed in packages of six syringes, each containing 500 million bacteria. Greeley Laboratories, Inc., Boston.

Gonococcus Vaccine, Polyvalent.—Marketed in separate syringe packages containing, respectively, 50, 100, 200, 400 and 1,200 million killed bacteria. Schieffelin & Co., New York.

Pneumococcus Vaccine.—Marketed in packages of six syringes, each containing 500 million bacteria. Greeley Laboratories, Inc., Boston.

Staphylococcus Albus Vaccine.—Marketed in packages of six syringes, each containing 1,000 million bacteria. Greeley Laboratories, Inc., Boston.

Staphylococcus Aureus Vaccine.—Marketed in packages of six syringes, each containing 1,000 million bacteria. Greeley Laboratories, Inc., Boston.

Strepto-Bacterin (Human) Polyvalent.—Marketed in packages of six ampoules, each containing 100 million killed bacteria; also in packages of six ampoules, each containing 200 million killed bacteria. The Abbott Alkaloidal Co., Chicago.

Streptococcus Vaccine.—Marketed in packages of six syringes, each containing 500 million bacteria. Greeley Laboratories, Inc., Boston.

Scarlet Fever Treatment.—Marketed in packages of four vials containing, respectively, 50, 100, 200 and 400 million killed bacteria.

Typhoid Bacillus Vaccine.—Marketed in packages of six syringes, each containing 1,000 million bacteria; also in packages of six syringes containing, respectively, 100, 200, 400, 600, 800 and 1,000 million bacteria. Greeley Laboratories, Inc., Boston. (Jour. A. M. A. Oct. 31, 1914, p. 1577.)

PUBLIC HEALTH EXHIBITION

The people of Chicago who are interested in making it a better place to live in, are to be given an opportunity of studying the city's needs at the forthcoming Public Health Exhibition to be held under the auspices of the Chicago City Club, opening December 1 and continuing to January 15.

This means that every good citizen should feel it his duty to visit not only once, but repeatedly, this exhibit.

In his introduction to the booklet, which is intended as a guide for those who visit the exhibit, Prof. E. O. Jordan, chairman of the Public Health Committee, well says that the public health is the most important material interest of the community and the state. Then he adds, "Either the financial loss that preventable sickness and death bring upon a community or the blunting and disabling effect that illness has upon all the higher and finer forms of human activity would be sufficient reason for placing the conservation of human life and health as the most important function of normal community existence."

The purpose of this great exhibit is to present in visualized form, so far as can be done, Chicago's needs for better protection of its people's health, comfort and happiness, and in addition to show how these important adjuncts of city life may be secured and maintained.

Few people, save those who have studied the subject of public health administration in all its many phases, have any adequate conception that the many things that touch deeply and in the most vital way their daily lives, are matters of public health administration by constituted authorities, and that upon the adequate equipment of public health agencies and the competency of those charged with the administration of public health matters depend the value to the community of the benefits derived.

The Public Health Exhibit, which will occupy practically the entire building of the City Club at 315 Plymouth court, will present in the most striking and attractive way those things that will suggest to any intelligent person the health needs of our city.

In order to see and study the exhibit in its entirety, it is suggested that visitors take the elevator to the sixth floor and work down.

Sixth floor, Infant Welfare.

Fifth floor, Food Inspection, School Inspection, Tuberculosis and Environmental Conditions.

Fourth floor, Administration and Education, Chicago Department of Health; other phases of the Department's activities will also be found in many of the exhibits on the various floors.

Third floor, General Exhibit, noon conferences; the noonday conferences also will be held on this floor.

Second floor, evening programs at which illustrated lectures by competent and interesting speakers will be given.

SAFETY FIRST

In one year of application serious accidents, as well as minor injuries, at the plant of the Goodyear Tire & Rubber Co., employing 7,500 men, have been reduced 33 per cent by the Safety First movement.

Every department has its safety rules for its own work and is required to become familiar with them; elevator gates are equipped with screens to prevent articles falling down shafts; trucks and core stands are inspected every week; slippery floors have been treated; rubber mats are laid wherever helpful.

An exhaustive test has proved that rubber heels are a safeguard against slipping, and heels are furnished the men in many departments. New ladders have been purchased and equipped with safety shoes. Goggles are furnished men on chipping and grinding operations.

Statistics show that the majority of accidents that did occur were due to carelessness, and the company is planning an even closer safety inspection for 1915, and many more mechanical safeguards will be installed, while the success of the campaign for the year just ended insures that employees have caught the spirit and will co-operate more thoroughly than ever before.

Book Notices

A MANUAL OF BIOLOGICAL THERAPEUTICS. Sera Bacterins, Phylacogens, Tuberculins, Glandular Extracts, Toxins, Cultures, Antigens, etc. Press of Parke, Davis & Company. 1914.

This booklet was written in the interest of the Parke-Davis Laboratories. It has much of interest and a considerable amount of information pertaining to the manufacture of biological products.

FOOD PRODUCTS, Henry C. Sherman, Ph. D., Professor of Food Chemistry, Columbia University. New York. The Macmillan Company. 1914. Price, \$2.25.

This book studies food values of nearly all sorts of food, gives something of the method of production, the preparation for market, and such statistical data as will indicate the relative importance of the industry; second, the composition and general food value; third, questions of sanitation, infection and standards of purity, and fourth, special characteristics of composition, digestibility, nutritive value and place in the diet. Quite a considerable consideration is given to milk and milk products.

MORRIS' HUMAN ANATOMY. A complete systematic treatise by English and American authors. Fifth edition. Revised and enlarged. Edited by C. M. Jackson, M. S., M. D., Professor and Director of the Department of Anatomy, University of Minnesota. Containing 1540 pages, with 1182 illustrations, 358 in colors. In one large volume. Price, \$6, in cloth. Also published in five parts with indices. P. Blakiston's Sons and Co., Philadelphia.

This splendid work, thoroughly revised and rearranged in this edition, although formidable in bulk, has adopted a system of printing the fundamental facts in larger type so that the student may confine himself to the line of work suitable for his purpose in study. Thus the beginner may confine his time to

the elements and later fill in the details to any required extent. The illustrations, whether black, colored or radiograms, leave nothing to be desired either for number or for clearness exposition. Credit is given for all illustrations from other sources and after each section references to other authorities on the subject. Although the originator of this great work, Sir Henry Morris, and his co-editor, Professor McMurrich, have retired, the new editor and his associates have carried on "the torch" with signal ability, and the medical profession have another monumental work proving that the science of Anatomy has advanced far beyond the student days of men who do not consider themselves yet in the class of "old men."

MANUAL OF OBSTETRICS. By Edward P. Davis, A. M., M. D., Professor of Obstetrics in the Jefferson Medical College, Philadelphia. 12mo. of 463 pages, 171 illustrations. Philadelphia and London. W. B. Saunders Company. 1914. Cloth, \$2.25 net.

This little book covers the obstetrical field concisely. It is intended for the use of the student or the practitioner, and is remarkable for the amount of information given in such a sized volume. It is just recently from the press and presents the latest studies on obstetrical questions. It is a useful book for the busy practitioner in which to review his points of diagnosis and plan of treatment.

THE MEDICAL EPITOME SERIES. Obstetrics. A Manual for Students and Practitioners, by W. P. Manton, M. D., formerly Professor of Obstetrics and Clinical Gynecology, Detroit College of Medicine; Gynecologist to Harper Hospital and to the Eastern and Northern Michigan Hospital for the Insane; Consulting Gynecologist to St. Joseph's Retreat; Fellow of the American Gynecological Society, the Royal Society of Medicine, the American Association of Obstetricians and Gynecologists, etc. Second edition, revised and enlarged, including selected list of State Board Examination Questions. Illustrated with 97 engravings. Lea & Febiger. Philadelphia and New York.

This little book furnishes a review of the subject. It covers the entire field of obstetrics in a methodical manner, and will be found useful to students and those wishing to review examinations.

PATHOGENIC MICRO-ORGANISMS. (Including Bacteria and Protozoa.) A Practical Manual for Students, Physicians and Health Officers. By William H. Park, M. D., Professor of Bacteriology and Hygiene in the University and Bellevue Hospital Medical College, and Director of the Bureau of Laboratories of the Department of Health, New York City, and Anna W. Williams, M. D., Assistant Director of the Bureau of Laboratories, New York City; Consulting Pathologist to the New York Infirmary for Women and Children. New (5th) edition, thoroughly revised. Octavo, 684 pages, with 210 illustrations and 9 full-page plates. Cloth, \$4.00 net. Lea & Febiger, Publishers. Philadelphia and New York. 1914.

Lea & Febiger have just issued the new 5th edition of this book on Pathogenic Micro-organisms. The work is entirely rearranged and thoroughly revised and is practically a new work, suitable for the student, the sanitarian or the laboratory worker.

Under the rearrangement the text is divided into three parts. Part one with the general characteristics and methods of study of all micro-organisms; Part two studies the individual pathogenic micro-organisms and their near relatives; Part three is devoted to "Applied Micro-biology."

The field covered by this work is broad and includes such subjects as soil and sewage bacteria, the bacteria of industry; disinfectants; the bacteriology of milk in relation to disease; bacteriological examination of air, water and soil, and water purification.

It contains the essential data on the subject of the filtrable viruses, the preparation and use of media and aniline dyes.

We recommend it.

UNITED STATES PUBLIC HEALTH SERVICE. Rupert Blue, Surgeon General. Municipal ordinances, rules and regulations pertaining to public health, adopted during 1912 by cities of the United States having a population of over 10,000 in 1910. Reprint No. 199, Public Health Reports. 1912-1913. Washington Government Printing Office.

LOCAL AND REGIONAL ANESTHESIA, including Analgesia. By Carroll W. Allen, M. D., of Tulane University, New Orleans, with an introduction by Rudolph Matas, M. D., of Tulane University, New Orleans. Octavo of 625 pages with 255 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$6.00 net; half morocco, \$7.50 net.

Perhaps no special subject within the domain of medicine has presented more interesting reading than the history of anesthetics. Anesthetics, always looked for, yet for centuries eluding the grasp of man. No progress of moment was made from 1000 B. C. until chloroform and ether were discovered. Many were the disappointments in the quest of anesthetics.

Today there is still unrest concerning the anesthetics at our command. The mortality from general anesthesia is too high, and the discomfort is too great. Much of this trouble is, we believe, due to the fact that the great majority of general anesthetics are given by untrained anesthetists. At any rate, the great amount of literature appearing today upon this question proves that a better anesthetic is wanted.

During the last few years much work has been done along the line of local anesthetics, and it is almost certain now that the future anesthetic will be one which will produce a nerve blocking, will not produce unconsciousness, and will have a lower mortality.

This book by Dr. Allen has gone deeply into the study of local anesthesia. It covers the field more completely than any other book we have seen, and we think any one doing surgery should possess a copy.

THE CLINICS OF JOHN B. MURPHY, M. D., at Mercy Hospital, Chicago. Volume III, Number V. Octavo of 190 pages; 61 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Published bi-monthly. Price per year: Paper, \$8.00; cloth, \$12.00.

A very interesting number of Murphy's clinics. A considerable portion of the volume is given over to

clinical diagnosis—given in Murphy's own way. Other clinical cases demonstrated and operated upon are:

Traumatic epilepsy.

Epithelioma of glans penis.

Carcinoma of corona penis.

Fecal fistula.

Several ankle operations.

Removal of nail from right tibia and oscaris.

Arthroplasty of the knee.

Arthroplasty of the elbow.

Hypertrophy of middle lobe of prostate.

Imperforate anus.

Carcinoma of breast and a discussion of the use of radium and x-ray.

MEDICAL JURISPRUDENCE. A statement of the Law of Forensic Medicine, by Elmer D. Brothers, B. S., LL. B., member of the Chicago bar; lecturer on Jurisprudence in the Medical and Dental Departments of the University of Illinois and in John Marshall Law School. St. Louis: C. V. Mosby Company, 1914. Price, \$3.00.

This volume is a little out of the ordinary in that it is a text-book for the medical student upon legal topics. The author has for twenty years been lecturing to medical and dental students upon medical jurisprudence, and this book is written for the use of these students.

The book is very interesting for the medical man, and every practitioner should know more of medico-legal questions than the majority do know. While written primarily as a text-book for the student, every doctor may benefit from its reading.

MEDICAL SYMPOSIUM SERIES, No. 3. Recent Studies of Tuberculosis. A reprint of articles published in the Interstate Medical Journal. St. Louis: Interstate Medical Journal Company, 1914. Price, \$1.50.

This volume should be in the hands of every medical man—whether surgeon or general practitioner. Your tuberculosis literature is not complete without it.

OPERATIVE SURGERY OF THE NOSE, THROAT AND EAR FOR LARYNGOLOGISTS, RHINOLOGISTS, OTOLOGISTS AND SURGEONS. By Hanau W. Loeb, A. M., M. D., Professor of Ear, Nose and Throat Diseases in St. Louis University, in collaboration with Joseph C. Beck, M. D., R. Bishop Canfield, M. D., George W. Crile, M. D., Eugene A. Crockett, M. D., William H. Haskin, M. D., Robert Levy, M. D., Harris P. Mosher, M. D., George L. Richards, M. D., George E. Shambaugh, M. D., and George B. Wood, M. D. In two volumes. Vol. I. Four hundred and nine illustrations. St. Louis: C. V. Mosby Company, 1914.

This volume (Vol. I) deals exclusively with operative work upon the nose, throat and ear, not taking into account the pathology nor etiology which necessitates the operation, but does consider the method of operating and the indications or contraindications for each operation.

The volume is generously illustrated, the text and the method thereby being clearly described.

This volume deals extensively with the surgical anatomy of the nose, throat and ear, and the direct examination of the larynx, trachea, bronchi, esophagus

and stomach, and the plastic surgery of the nose and ear.

Any one doing nose and throat surgery should possess a copy.

THE TONSILS, FAUCIAL, LINGUAL AND PHARYNGEAL, with some account of the Posterior and Lateral Pharyngeal Nodules. By Harry A. Barnes, M. D., Instructor in Laryngology, Harvard Medical School; Surgeon in the Department for Diseases of the Nose and Throat, Boston Dispensary; Assistant Laryngologist, Massachusetts General Hospital; Member New England Laryngological and Otolological Society; Member American Laryngological, Rhinological and Otolological Society. Illustrated. St. Louis: C. V. Mosby Company, 1914. Price, \$3.00.

If we consider the voluminous amount of literature on the tonsil appearing in the various medical journals during the last two or three years, it is not at all surprising that an entire volume comes out devoted entirely to this subject.

A large part of this volume is devoted to the anatomy and histology of the tonsil. Many excellent drawings and microphotographs illumine the text. The technique for most of the operative procedures on the tonsil is described in some detail.

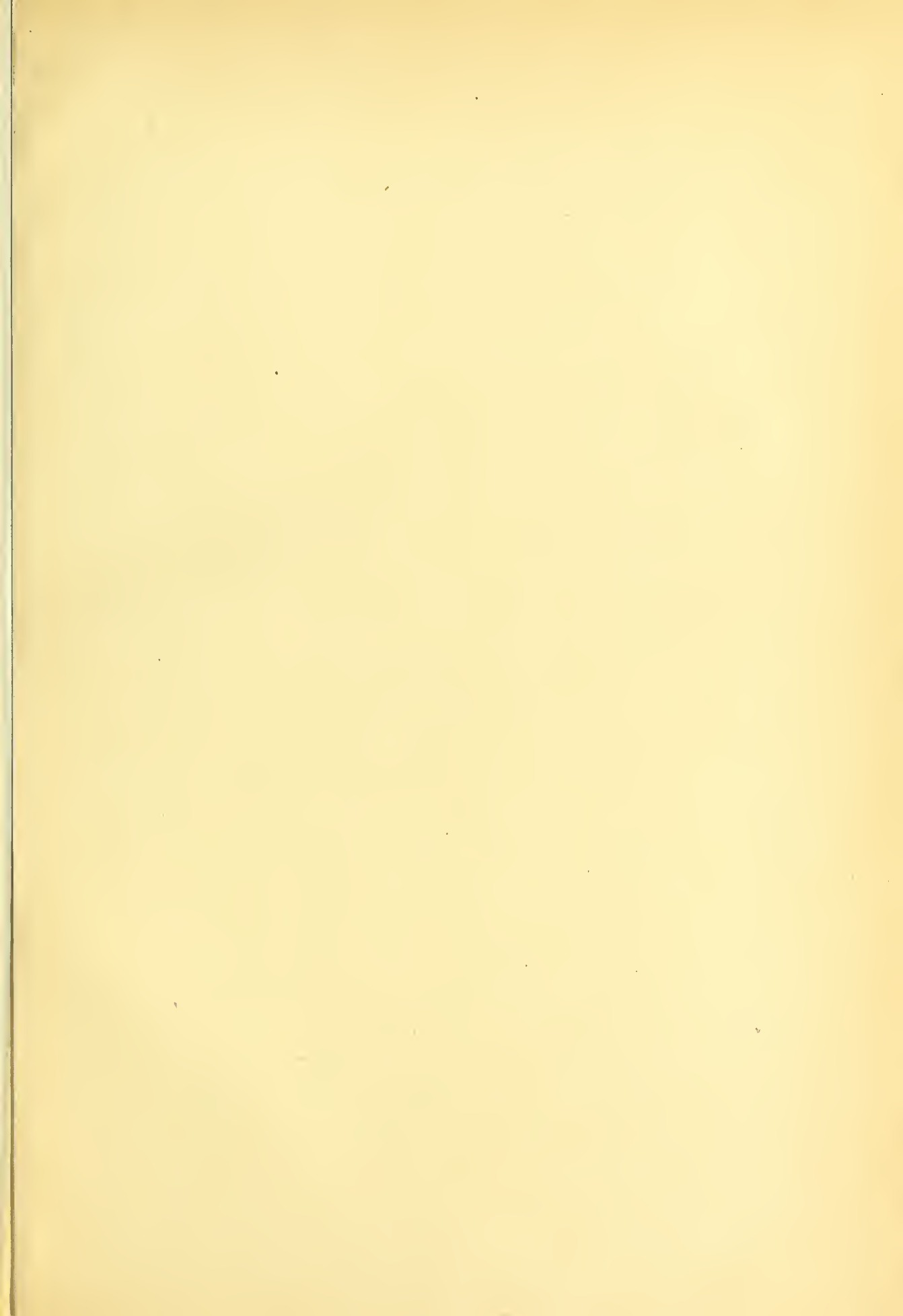
It is a useful addition to your library.

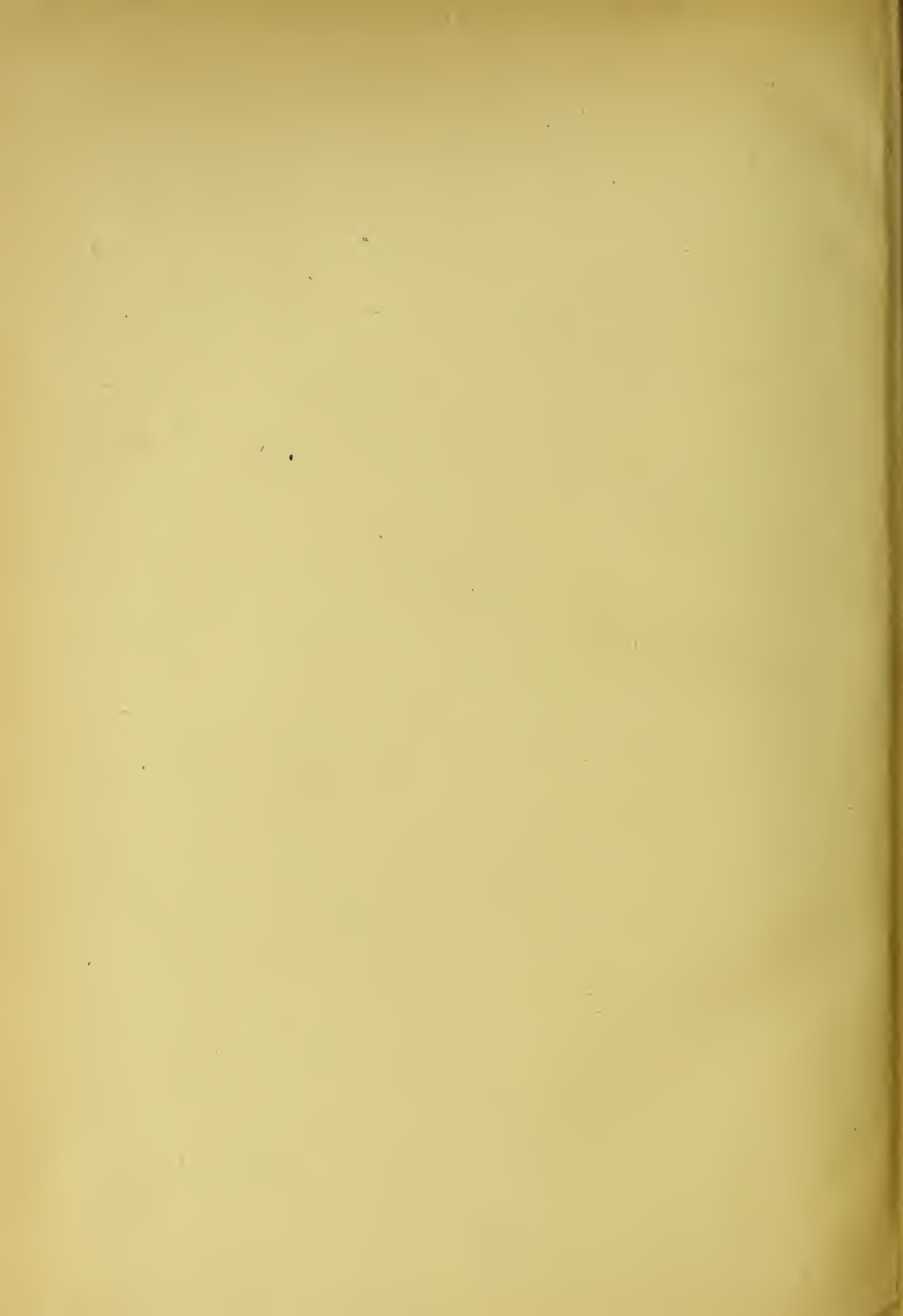
WORRY AND NERVOUSNESS; OR THE SCIENCE OF SELF-MASTERY. By William S. Sadler, M. D., Professor of Therapeutics, the Post-Graduate Medical School of Chicago; Director of the Chicago Institute of Physiologic Therapeutics; Fellow of the American Medical Association; Member of the Chicago Medical Society, the Illinois State Medical Society, the Press Club of Chicago, the American Association for the Advancement of Science, etc., etc. Illustrated. Chicago: A. C. McClurg & Co., 1914. Price, \$1.50.

This is a book which it seems was not written especially for either the medical man or for the layman; covers 535 pages of rather fine print, therefore, covers a wide field.

The preface says "It is the author's sincere hope that this work, whether falling accidentally into the hands of the laity—especially nervous sufferers—or whether put there by the physician, will contribute something definite to the emancipation of such sufferers from the tyranny of "nerves," the slavery of "worry" and the thralldom of "fear."

A considerable portion of this work sounds not unlike the medical department of the editorial pages of the daily press. The book undoubtedly contains much that is good, but the questions arises—Is it wise to put into the hands of a sick patient a book that treats of his particular disease, or of diseases in general? We think not. If a man has cancer, should we place in his hands a work on cancer? If he has tabes dorsalis, should he read a work treating of that disease, and which depicts the not infrequent long-drawn-out fatal conclusion? Then why, if a patient has neurasthenia or hysteria, should we give him to read a book dealing with nervous disease? Perhaps the physician may select a special patient who may benefit from the reading of this book. Much of it will be of interest to the physician.





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